The Boy Who Harnessed the Wind

INTRODUCTION

BRIEF BIOGRAPHY OF WILLIAM KAMKWAMBA

William Kamkwamba was born in rural Malawi in 1987 and worked on his parents' farm for much of his childhood. When the 2000-2002 famines hit Malawi, Kamkwamba channeled his scientific mind into creating a wind turbine to give his family's home electricity. Kamkwamba succeeded in "harnessing the wind" in 2002, gaining the notice of a few Malawian academic professors and American reporters who shared Kamkwamba's story. In 2007, Kamkwamba was chosen as a presenter for TEDGlobal where he met many like-minded individuals from Africa and the United States. Kamkwamba then attended the African Bible College Christian Academy, the African Leadership Academy, and continued to speak about his experiences building the windmill across the United States. Kamkwamba has received numerous awards and grants to further the beneficial work that his engineering and inventions have accomplished in rural Malawi. Kamkwamba graduated from Dartmouth College in 2014 and now works with his wife, Olivia, to bring education and innovation to the new generation of Malawians. Kamkwamba's co-author Bryan Mealer grew up in Odessa and San Antonio, Texas. He attended the University of Texas at Austin and began working as a journalist. Mealer moved to Africa as a freelance reporter and covered the war in the Democratic Republic of Congo for the Associated Press and Harper's Magazine. While living in Africa, Mealer met Kamkwamba and became interested in sharing his life story, which became a New York Times bestseller. Mealer has also written *Muck City*, *All Things Must Fight to Live* (detailing his experiences in the Democratic Republic of Congo), and a planned fourth book about his family's history in the Texas oil industry. Mealer and his family now live in Texas.

HISTORICAL CONTEXT

Malawi gained independence from British Colonial Rule in 1964, beginning a journey toward democratic rule that is still in progress. The various presidents of Malawi have offered both harm and help to the Malawian people. President Banda was the first "president" of Malawi, though his governing strategy was closer to that of a dictatorship. He began a program of start-up fertilizer and seed kits for citizens like William and his family who made their living through agriculture, yet he also strictly controlled many aspects of Malawians' daily lives in order to ensure his own power. Banda's successor, President Muluzi, made efforts to subsidize business and boost the economy, but ignored many of the human rights needs of his own people while trying to improve the reputation of Malawi in Africa as a whole. Aside from governmental divisions, many Malawian citizens experience difficulty due to the high percentage of agricultural-based occupations. In 2000, a famine struck Malawi after two seasons of harsh flooding that prevented the crop growth. This was made worse by the Muluzi administration's decision to sell off the maize surplus to boost the Malawian economy (and, many theorize, to line the pockets of government officials). An estimated 70% of Malawian people were left without food and up to seven million people faced death from starvation and disease while looking desperately for work that was not dependent on farm production. The districts affected worst were the agricultural areas of Kasungu and Dowa, places that William calls "the breadbasket of Malawi" in the book. Muluzi only announced a state of emergency in 2002, two years after the famine began, leaving aid organizations such as The World Food Program or the United Nations Development Program unable to properly address the crisis at the time. By 2004, most of Malawi was on the road to recovery, but several food shortages have affected the country in the past ten years. Innovators like William Kamkwamba have been working since 2005 to improve health care and education in Malawi to give this country a better chance at surviving these agricultural hardships.

RELATED LITERARY WORKS

The Boy Who Harnessed the Wind joins books such as *Mountains Beyond Mountains* by Tracy Kidder or *Half the Sky* by Nicholas Kristoff that seek to inspire people to improve the practical conditions of life for people in regions where modern science is not yet a significant influence. With its focus on the importance of education in developing nations, *The Boy Who Harnessed the Wind* also shares elements of *Three Cups of Tea* by Greg Mortenson, *Reading Lolita in Tehran* by Azar Nafisi, or *I Am Malala* by Malala Yousafzai that detail efforts to bring better schooling to rural countries. Finally, *The Boy Who Harnessed the Wind* depicts the sometimes harsh, yet potentially hopeful reality of life in Africa, following the projects of books such as *A Long Way Gone* by Ishmael Beah and *Tears of the Desert* by Halima Bashir.

KEY FACTS

- **Full Title:** The Boy Who Harnessed the Wind: Creating Currents of Electricity and Hope
- **When Published:** October 1, 2009
- **Literary Period:** Contemporary non-fiction
- **Genre:** Non-fiction, memoir
- **Setting:** Wimbe, Malawi

- **Climax:** William is invited to TEDGlobal 2007 to speak about his wind-powered electricity, meeting many of the most brilliant inventors and entrepreneurs in Africa as well as gaining funding to improve his village and further his education.
- **Antagonist:** Famine in rural Malawi, corruption in the Malawian government
- **Point of View:** First person

EXTRA CREDIT

Video Supplements. Two of William Kamkwamba's TED talks are available online, titled "How I made a Windmill" and "How I Harnessed the Wind." The first, filmed in 2007, shows William's short interview with Chris Anderson about the windmill that William detailed in the book. The second, filmed in 2009, details more of William's hardships along the journey to build the windmill as William looks back on the beginnings of his journey after living in Lilongwe, South Africa, and America for his schooling. Each video offers the advice "Don't give up."

Universally Inspiring. Kamkwamba and Mealer have also released a Young Readers Edition of the book meant for middle school readers (Grades 4-7) and a Picture Book Edition for elementary school readers (Grades PreK-3) so that children of all ages can be inspired to take an interest in science and engineering by reading William's story.

PLOT SUMMARY

William Kamkwamba reveals that he will eventually be successful in creating a **windmill** that generates electricity. He begins by describing his childhood in rural Malawi, where magic is far more influential than science. William's father, Trywell, has no time for magic and often saves William from getting in trouble with anything to do with witches – though Trywell still tells magical stories to William and his sisters. Trywell's life includes enough strange and wonderful occurrences that Trywell has no need of magic. Trywell was a trader as a young man, rather than a farmer, and earned a reputation for drinking and fighting anyone. Trywell fell in love with Agnes, and later married her. Yet it is only when Trywell is arrested for beating a man that he becomes a Christian and turns into a wonderful husband and provider for his family. Trywell and his family move to the district of Wimbe so that Trywell can be a farmer like his successful brother John.

As a child in Wimbe, William spends most of his time with his cousin Geoffrey and his friend Gilbert, the son of the chief of their district. They make toys out of trash and recycled goods when they are not at Wimbe Primary School or helping their families in the fields. William daydreams in his private bedroom, safe from the squabbles of his four sisters, wishing he could be strong through a magical ritual called mangolomera. He has heard of a man named Phiri who had super strength and agrees to go through the same ritual. However, the magic does not work and William is left worrying if the fake medicine given to him by a sing'anga (witch doctor) will make him sick.

When William is nine, Uncle John dies and Geoffrey's family is left in disarray. Trywell helps manage John's farm for a while, then turns it over to Geoffrey's brother Jeremiah, who unfortunately is too lazy to run a farm. Farming in general is also tougher in Malawi due to the policies of the newly elected President Muluzi, who is more pro-business than the previous President Banda's farmer-friendly dictatorship. During this time period, William's Uncle Socrates comes to live in Wimbe, bringing with him a dog named Khamba that becomes William's friend despite William's initial dislike of dogs. William goes hunting with Khamba and enjoys the rare luxury of eating meat.

William and Geoffrey become interested in radios and soon understand the machinery inside well enough to have a small radio-repair business. William looks forward to taking real science classes in secondary school and achieving something more than the average Malawian life of farming maize to make nsima, the staple food of Malawi. Farming is hard work and keeps William exhausted through the harvest and planting time, as well as hungry during the months in between harvests. In December of 2000, the rains are so heavy that most farmers can't even plant – spelling disaster for all the Malawians who depend on these farms for food.

Through the preoccupation of a terrible harvest, William begins investigating how bicycle dynamos are able to light a bulb with electricity generated by a person pedaling. William begins to dream of the improvements he could make to his family's life if he had electricity to power lights and irrigation pumps. He studies hard for the exit exams for Wimbe primary school so that he can get chosen for a good secondary school, become a scientist, and better his family's conditions. Meanwhile, the corn supply in Wimbe continues to get lower and lower as more farmers from the outer villages come into William's village looking for ganyu (day work) after such a dismal crop. Even worse, President Muluzi has sold all of Malawi's surplus grain store. Soon the Kamkwamba family is doing everything they can to keep food on the table and make the little grain they have stored up last until the next harvest. When Chief Wimbe tries to speak to President Muluzi's officials on behalf of the hungry people in the village, he is beaten up by some of Muluzi's thugs.

By December of 2001, William and his family are down to one meal a day, and his mother gives birth to another baby girl. Keeping up hope, Trywell and Agnes name her Tiyamike, meaning Thank God, instead of reflecting on their poor circumstances at the moment. Agnes starts a hot cake stand to make enough money for supper each night, but the price of maize continues to rise as the food shortage goes on unrelieved. William's older sister Annie even elopes with a

young teacher from the next village over to escape the poverty and starvation in Wimbe. Villagers, including William, line up for hours for even the rumor of maize at the government storehouse, and even start to sell their possessions for the price of one day's meal. That Christmas is dismal, the monotony of hunger only broken by William and his older cousin Charity's crazy scheme to get a goat skin from the butcher and cook it as meat. The boys chew the skin that they can, then give the rest to Khamba.

As the famine continues, William does get the good news that he has been accepted at Kachokolo Secondary School. It is not one of the top schools William wanted, but it will at least give him a chance to further his educational goals. He starts classes in mid-January, but is forced to drop out when Trywell does not have the money to pay William's school fees. William is left with little to do but watch the new harvest grow and play games in the village trading center. Starving people die along the road looking for work or in the clinic from diseases such as cholera, but President Muluzi continues to deny that anyone is dying of hunger. William faces his own personal tragedy when he is forced to leave Khamba to die as there is no food to spare for a dog.

Finally, in March, the young corn called dowe is ready to eat. William and Geoffrey celebrate in the field, and the Kamkwamba family is able to eat semi-regular meals once again. The village begins to come back to life, and William is able to think about school once more. To keep his mind active, William goes to the library at Wimbe Primary School, where he finds books on physics and engineering that change his life. From a diagram and illustration in the book *Explaining Physics*, William gets the idea to build a windmill to generate electricity from the wind. With Geoffrey's help, William makes a small prototype windmill out of recycled materials and an electromagnetic motor he built himself out of old radio parts.

With that small success, William begins to gather materials for a full size windmill strong enough to power lights for his home. He spends his days in an abandoned scrap yard near Kachokolo school looking through the old machinery for any parts that will be useful. Meanwhile, classes at Kachokolo start again after being canceled during the famine. William attends for a few weeks, but is once again unable to afford the school fees. This year's plentiful harvest keeps him busy for a time, but William soon returns to his windmill project. The other villagers start to notice and think that William has given up on school or gone crazy, but William knows he will be successful. Eventually, William finds or creates all the pieces he needs to assemble a windmill except for the crucial generator. Gilbert steps in and buys William a bicycle dynamo so that he can complete the windmill. Geoffrey and Gilbert help William assemble all the parts, build a tower, and hoist the windmill up to a height where it can catch the breeze. A crowd gathers to watch the strange goings-on as William wires up a small lightbulb and releases his windmill blades to spin and generate power. Everyone erupts into cheers when the lightbulb lights up.

William wires up a system of lights into his house and even figures out how to use his windmill generated electricity to charge cell phones. He continues improving and troubleshooting his recycled materials until he has wired his entire family's house with lights and built a make-shift circuit breaker to protect from possible power surges and fires. William even replaces the original bicycle chain on his windmill's motor with a far more reliable rubber belt so that he no longer has to risk injuring himself while fixing a snapped chain. He then turns to other projects such as radio transmitters, water pumps, and biogas. Some experiments are successful while some are not, but all work to fill the lack of formal schooling in William's life. Most of the people in the village greatly appreciate William's inventions.

Hardships come to William's life once again as Agnes suffers from a particularly bad bout of malaria, Gilbert's father Chief Wimbe dies, and the region experiences another drought and subsequent threat of famine. Though the government offers aid this time under the new direction of President Mutharika, some people still blame William's windmill for calling witches and dark magic to chase away the rain. William sees many ways that magic and superstition can hurt Malawians and joins a club that seeks to educate people about the scientific diagnosis and treatment of HIV/AIDS to counteract the deaths that come from ineffective magic healing.

On a routine inspection of Wimbe primary school, officials notice William's windmill and inform Dr. Hartford Mchazima about a talented rural boy with an aptitude for science. Dr. Mchazima helps spread William's story across Malawi and across the world as William is featured in an American blog. William becomes a fellow at TEDGlobal 2007, and goes to Arusha, Tanzania to present his windmill project. The attention of such significant Malawian figures earns William back the approval of his town and a scholarship to a boarding school. While at TEDGlobal, William meets many people, African, American, and European, who share his goals of improving life for people in emerging countries through new technology. A few of these inventors and innovators, including Tom Rielly, help William get sponsors so he can make several practical improvements in his village and attend excellent schools such as the African Bible Christian Academy. William improves his English and travels to America, speaking about his windmill and learning about even more things that might help Africans reach the same quality of life as Americans. William then returns to Africa to attend the African Leadership Academy in Johannesburg, South Africa, where he can collaborate with other young inventors, scientists, and activists who have a vision for bringing Africa into a brighter future. William dreams of inspiring people with his own story of success despite terrible hardship, and works to give other children in Malawi

the education that they need to build their own windmills and improve their own lives.

CHARACTERS

MAJOR CHARACTERS

William Kamkwamba – The protagonist and narrator of the book, a young Malawian man who grew up in the rural village of Wimbe during the 2000 famines in Malawi. William has an incredible aptitude for science and engineering, though he is unable to stay in school due to a lack of funds. Self-motivated and resourceful, he finds books in his local library that allow him to learn about physics, electricity, and labor-saving inventions on his own. With the help of his friends Gilbert and Geoffrey, William then builds a **windmill** so that his family can have free electricity that is not controlled by government blackouts. The windmill earns William the support of a Malawian professor, who helps William gain scholarships to school and a fellowship with TEDGlobal that puts William in contact with other innovators and entrepreneurs across the African continent and the world. William embodies the values of hard-work, education, and helping others, maintaining an optimistic outlook on everything despite the many troubles described in the book.

Trywell Kamkwamba – William's father. A large, powerful man, Trywell had a reputation for drinking and fighting that got him in trouble until he decided to turn his life over to God and the Christian faith. William respects his father and idolizes his strength and generosity. Trywell teaches William how to be an upstanding member of the community who helps people in need and improves life for all. Trywell does not believe in the curses of Malawian magic, instead prioritizing education and business sense to imagine a better future for his children and the Malawian people.

Agnes Kamkwamba – William's mother. A Yao (Muslim cultural group) Malawian, Agnes supports her children, stretching the food as much as possible through the famine and opening a small food stand to keep food on the table for her children. Though a devoted mother, Agnes does not fully understand William's crazy inventions but tries to support his dreams anyway.

Gilbert – William's good friend and Chief Wimbe's son. Gilbert has the money to stay in school even during the famine, representing the importance of education in William's life. Gilbert also helps out William with his **windmill** project and other inventions, both with funds and labor. Gilbert is a sign of how important community support is to William's accomplishments in the book.

Geoffrey – William's cousin, the son of Uncle John, and one of William's best friends. William and Geoffrey work in the fields together and share many games and jokes as they grow. Geoffrey's family is hit hardest by the famine and Geoffrey suffers from anemia until William can help him get more food. Geoffrey supports William's somewhat crazy schemes to build electric generators and water pumps, often helping him gather materials or put together machinery. Geoffrey shows the importance of familial support in Malawi, as both Geoffrey and William help each other whenever they can.

Albert Mofat (Chief Wimbe) – The leader of the community in Wimbe, and Gilbert's father. The Chief is supposed to ensure the well-being of his people, often picking up the slack when the Malawian government seems not to care about its citizens. Albert himself is just one generation of this role, who does his best to help people despite the famine.

Khamba – William's dog. Khamba originally belonged to William's Uncle Socrates, but came to live in Wimbe before the famine. Khamba becomes William's companion and loves to hunt, but grows old and weak during the famine. As William comes to terms with the costs of the famine, he is forced to leave Khamba to die. Khamba's death marks an end to William's childhood innocence and a full understanding of the sometimes harsh choices people make to survive.

MINOR CHARACTERS

Mister Ngwata – Chief Wimbe's second in command and bodyguard.

Uncle John – Trywell's brother who established a farm in Malawi and convinced Trywell to join him in the countryside. John has two sons, Jeremiah and Geoffrey.

Jeremiah – Uncle John's oldest son and Geoffrey's older brother. Jeremiah inherits John's farms, but is too irresponsible to correctly manage them and loses much of his family's wealth. Jeremiah provides a vision of the type of life that William would like to avoid.

Uncle Musaiwale – Trywell's brother and William's uncle.

Uncle Socrates – Trywell's brother and William's uncle, as well as the original owner of Khamba.

Annie – William's oldest sister, who eloped with a teacher named Mike during the famine.

Aisha – William's sister.

Mayless – William's sister.

Doris – William's sister.

Rose – William's sister.

Tiyamike – William's youngest sister and the baby of the Kamkwamba family.

Grandpa – William's grandfather and Trywell's father. Grandpa lived in a time when Malawi was still wild and the influence of magic was far more pronounced.

Ruth –William's older cousin who lives in Mzuzu town and has

a cell phone.

Charity – William's older cousin who lives at the Mphala, a home for unmarried boys.

Mizeck – One of Charity's friends, a fellow boy at the Mphala (home for unmarried boys).

Bakili – Agnes' older brother, who helps arrange the marriage between Trywell and Agnes though he is not in favor of the match.

Mike – A teacher in Mtunthama who falls in love with Annie and convinces her to elope during the 2000-2002 famine.

President Banda – The president of Malawi from 1971 to 1994, who freed Malawi from British rule but turned the government into a dictatorship. Banda put harsh restrictions on everyday life in Malawi, but did try to support Malawian farmers like Trywell.

President Bakili Muluzi – The president of Malawi from 1994 to 2004. Muluzi is a businessman who attempts to revitalize the Malawian economy but puts harsh burdens on the rural Malawian farmers. Muluzi sells off the surplus of maize and ignores the Malawian famine, causing huge devastation to many Malawian communities.

Bingu wa Mutharika – The president of Malawi from 2004 to 2012. William admires Mutharika for the subsidies he offered to Malawian farmers and the aid he gave to rural communities in times of hardship. William met Mutharika in 2007.

Robert Fumulani – One of the most famous Malawian Reggae singers, and Trywell's favorite musician.

Mwase Chiphaudzu – A legendary chief of the Chewa people in Malawi, the focal point of one of William's favorite stories.

Mister Kabisa – the head prosecutor in Dowa who convinces Trywell to stop living a life of drinking and fighting and rededicate himself to the Christian faith.

Mister Phiri – A worker on Uncle John's farm who supposedly has super strength through a magical ritual called mangolomera.

Shabani – Phiri's nephew who tricks William into going through a magic mangolomera ritual to give him super strength.

Mister Mwale – William's neighbor who has many mango trees.

Mister Mangochi – A trader in Malawi who sells maize.

Mister Tembo – William's teacher at Kachokolo Secondary School until William no longer has the money for the school fees.

Headmaster W. M. Phiri – The Headmaster at Kachokolo Secondary School where William attends for a few weeks.

Mrs. Edith Sikelo – The librarian at the small library in the Wimbe Primary School.

Mister Godsten – A welder who helps William weld together the parts for his windmill.

Mister Daud – The owner of a hardware shop in the trader center where William wants to buy parts for his **windmill**.

Iponga – The owner of a barber shop in Wimbe.

Mister Banda – The owner of a convenience store in Wimbe.

Dr. Hartford Mchazime – A professor with the Malawi Teacher Training Activity who took interest in William and his windmill, and helped spread William's **windmill** story to innovators around the world.

Soyapi Mumba – A software engineer and coder at Baobab Health who works to computerize Malawi's health care system and brings William's story to Mike McKay.

Mike McKay – An American engineer and coder who works at Baobab Health with Soyapi Mumba and wrote about William's story on his blog Hacktivate.

Emeka Okafor – A Nigerian blogger and entrepreneur, as well as the program director of TEDGlobal 2007. Okafor invited William to apply to be a fellow at TEDGlobal.

Tom Rielly – A fellow at TEDGlobal who helps William start raising money to improve conditions in Wimbe.

Chris Anderson – The TED curator at TEDGlobal 2007 who interviews William about his windmill.

Gerry Douglas – A British-Canadian computer scientist who lives in Lilongwe and offers William a place to stay while William attends the African Bible College Christian Academy.

Blessings Chikakula – William's tutor at the African Bible College Christian Academy, who himself overcame poverty and famine to gain an education.

TERMS

ADMARC – The Agriculture Development Marketing Corporation, a Malawian government company that sells maize at discounted prices.

Dambo – Fertile, marshy ground with dark black soil and plenty of water. Dambo is the best land for farming and hunting.

Dowe – Green maize, somewhat similar to American corn, the first edible crop of the harvest season. Dowe is often cooked in the field as a treat for the start of harvest time after the hunger season in Malawi.

Ganyu – Day labor or piece work that villagers do to earn money or as a last resort for food when they cannot work on their own farms.

Gule Wamkulu – A secret gang of stilt dancers, who legend says are the spirits of ancient ancestors come back to life. The Gule Wamkulu dance at important events for the Chewa people, including funerals and initiation ceremonies when boys become men. These dancers have the power to bewitch children who watch them dance for too long, or who are caught wandering

alone in forests and marshes. It is bad luck to even speak of the Gule Wamkulu.

Kwacha – Malawian currency.

Mangolomara – A magic ritual, supposed to grant superhuman strength, which involves cutting one's knuckles and smearing the cut with a paste made of leopard and lion bones.

Mphala – Home for unmarried boys. Boys who are too old to live with their parents but are not yet married and starting families of their own live in a dormitory style building with other boys of the same age, though they still take meals at home. **William**'s cousin **Charity** lives in a mphala in William's village.

Nsima – Small dough cakes made from corn flour and water that are the foundation of every meal in Malawi and the mark of a successful Malawian farmer.

Sing'anga – A Malawian witch doctor who can perform curses on people or give them magical strength.

Walkman – a small blue plastic bag full of enough maize flour to feed one person, often sold in the city markets of Malawi.

THEMES

In LitCharts literature guides, each theme gets its own color-coded icon. These icons make it easy to track where the themes occur most prominently throughout the work. If you don't have a color printer, you can still use the icons to track themes in black and white.

REBIRTH, RECYCLING, AND REINVENTION

Throughout the book, William focuses on the way that new life can come from things that were seemingly useless or even dead. He applies the concepts of rebirth and recycling to objects in his village, the Malawian landscape, and the people of Malawi. This principle of rebirth and recycling is most visible in William's **windmill**, which is made up of spare parts and old materials that others threw away. William sees the potential in the items to become something useful once more, a practice that he repeats with many other inventions and prototypes. These recycled inventions give new life to his village by introducing labor-saving technologies and drawing the attention of important Malawian figures who can provide the education and funding necessary to revitalize the villages in the district of Wimbe.

Rebirth is a natural part of life in Malawi, due to the seasonal cycles that create dormant hunger seasons and renewed harvest seasons each year. When this cycle of rebirth is exacerbated by a country-wide drought, William and his family continue to work their land, though it seems useless, because they can envision the new life that will eventually come from their hard work. Those who do not follow the cycle of "death" and "rebirth" in the countryside are left with nothing when the famine ends. Furthermore, William's father, Trywell, reinvents his occupation as a farmer during the famine, becoming a businessman and a trader to keep his family from starving. Reinvention is necessary in Malawi to pull through the difficult times, and William even suggests that the people who go through this hard process of rebirth can come out stronger on the other side.

William constantly looks for opportunities to reinvent himself, and use his inventions to bring a new way of thinking to all of Malawi. William's reinvention is mainly seen in his academic pursuits, as William adapts to his new schools and surroundings in Malawi, other parts of Africa, and America. William seems to get his flexible and optimistic outlook on life from Trywell, who was able to leave behind a reputation for drinking and fighting in order to become a dependable father, husband, and provider for his family. William also sees potential for a rebirth for the entire country of Malawi. Though corruption in the Malawian government has caused turmoil for decades, William is hopeful that educating the next generation of Malawians and better managing the resources that make Malawi rich can cause Malawi to become a successful country that cares about the well-being of its citizens and helps them prosper.

THE BUSINESS OF SURVIVAL

Many of William's inventions are focused on helping people survive and thrive in Malawi and Africa at large. He sees survival as a business where difficulties must be balanced out with ingenuity and hard work. Malawi's farmers, though incredibly hard-working, are stuck in a vicious cycle wherein they barely survive each year and are unable to plan or save for the future. William wants to disrupt the damaging equation of work and loss that leaves his community with nothing and help them find a surplus.

While growing up on a farm in the Wimbe district of Malawi and watching his mother Agnes stretch food for many meals, William saw how a farmer must carefully calculate the crops they expect and look forward to the next season of crops even when times are hard at the moment. He also sees how the rich traders and government officials in Malawi use the close margins of the farmers' livings to cheat them for greater profits. William then wants to put power back in the hands of the farmers, by using his inventions and education to break the dependency that Malawian farmers have on the government or traders for commodities such as electricity, water pumps, fertilizer, and other goods.

The survival equation affects everyone in rural Malawi, but not everyone bands together to survive. Some have a win-or-lose mentality that causes them to steal from others or push others out of the way in times of hardship. William learns from his family, especially his father Trywell, that people must come

together in times of trouble so that everyone can survive. The survival of one person is not a zero-sum equation that requires another person to die. It is a combined effort that will help all people thrive. Yet the book does not suggest that it is anyone's responsibility to freely give other people the means of survival. Everyone must contribute or work in some way for his or her individual survival. To some extent, William's parents provide their children with the base requirements for survival and leave William and his siblings to their own devices to make sure that they get everything they need. William suggests that as long as everyone is working towards a better future for Malawi, the business of survival will become less about barely making it by and more about thriving. The collective efforts of many Malawians can balance the survival equation so that the communities can save up a surplus and mitigate the potential devastation of a bad crop or poor government management.

MALAWIAN CULTURE AND AFRICAN COMMUNITY

William describes many elements of Malawian culture as seen in his rural village and the glimpses he has of Malawian cities, commenting on both the similarities and differences to American life and culture. Throughout the novel, William notes how life in Malawi and America is different, but shows that people are much the same in Malawi and America. In America, William describes his shock at many things that Americans take for granted, such as elevators, high-rise buildings, and schools that are not falling apart, yet at the same time William himself certainly embodies the "American" values of success, hard-work, and individual motivation, and details how those traits are also indicative of most of his friends and family in Wimbe. He describes the basic desires of people in Malawi as similar to the average person in the United States, even if the outer trappings of life in the two countries are very different.

William also places Malawi within the context of Africa as whole, describing the struggle that many African countries share in finding tactics of self-governance that help heal the history of colonial exploitation and build stable, healthy futures for their citizens. William comments on the presidents of Malawi during his lifetime, and the way that they help or harm the country. For example, President Banda helped free Malawi from British rule and boosted the Malawian economy, yet harshly controlled the everyday details of Malawian lives. President Muluzi, Banda's successor, is instrumental in peace talks that help end the genocide in Rwanda, yet ignores the fatal famine crisis in his own country. Living with these politicians helps explain some of the Malawian cultural values that bring villages together to circumvent the policies of the government and ensure survival and success for individual citizens. William and his young friends Gilbert and Geoffrey, for example, are more loyal to the traditional government of a chief in their village. William specifically questions the authority of the Malawian government in his narration and his innovative actions in the book. Despite the hardships or benefits brought on by the various administrations of the Malawian government, the residents of Malawian villages come together as families and communities that support each other. William sees this helpfulness and community spirit as a hallmark of Malawian culture, and one of the things that Malawi does better than any other country.

William also feels some sense of kinship with people from other countries of Africa, calling them "brother" at various parts of the novel. William is proud to belong to the community of African inventors and innovators that are brought together by the TEDGlobal conference. He enjoys working with these brilliant men and women to see how they are improving their lives in their own home countries and which efforts can also be useful in Malawi. Especially when William is in America, he feels close to other Africans, such as the Senegalese people that stop him in the street to get his autograph. After living in America and seeing other parts of Africa through his studies, William sketches out a path for Malawi's future that builds on the success that William has seen abroad. He imagines using the Malawian values of hard-work, imagination, and community support to help Malawi become a proud leader of a Pan-African effort to improve the quality of lives in all parts of Africa.

EDUCATION AND ENTREPRENEURSHIP

William and his family place a huge value on education, as one of the only ways for a rural Malawian to improve his or her life. Though the actual conditions of William's primary school are dismal due to over-crowding and under-funding, William focuses on the positive aspects of gaining an education. When William's grades are not enough to gain entry into a top-tier, government-favored secondary school, William applies himself to learning as much as he can on his own. He scrapes together money for school funds at the local secondary school, and studies on his own when the school fees are too high.

William also applies what he learns to practical improvements in the village. He uses his natural aptitude for science and engineering to learn from the few physics textbooks in his local library to build new inventions like the **windmill**, to make his family's life easier and eventually benefit all the farmers in his rural village. As a presenter at TED Talks global, a conference that focuses on how technology, entertainment, and design can benefit mankind, William meets and forms a community with many other brilliant innovators who are committed to improving quality of life in Africa. William celebrates the overall vision of TED Talks to bring education to more people, and the specific application of TED ideas in Africa. William begins to reframe his goal of getting an education and helping his community to aid other rural students in getting a formal

education so that they too can contribute to the well-being of their communities. William sees the ripple effect of bringing better schools, curriculums, and especially science programs to rural Malawi as far more beneficial than any one of his inventions.

Beyond education, William also sees entrepreneurship as essential to building a better future for Malawi. These ideals go back to William's family, who started their own businesses without any formal training and were able to provide for their children. William's father's brother founded the farm that William's father works on, which allowed William to go to school in the first place. During the famine, William's parents put the principles of entrepreneurship to work again. They make the best out of a bad situation by starting a small food stand to keep some income and food flowing in for the family. William sees entrepreneurship as a way for people to come back from hardship and actually improve their lives. Working in tandem with a better education, new businesses have the potential to help the next generation of Malawians have better lives than their parents. Through education and entrepreneurship, William imagines a bright future not only for his village, but for all of Malawi and all of Africa.

SCIENCE VS. SUPERSTITION AND MAGIC

Science and superstition are at first at odds in the novel, as William tries to implement advances in science and leave behind the old magic beliefs. As William learns more about the scientific principles at work in the world, he believes less in magic that works good and evil upon people. Science improves William's life, both physically in his inventions and emotionally in the confidence that William gains in himself free from the threat of magic. As a young child, William was incredibly afraid of angering those with magic, and sought to control his own magic as a way of fighting back. As he grows, William turns to education and scientific advancements as a form of power. The people of William's village must also come to terms with science rather than magical beliefs. While many villagers see William's **windmill** at first as an evil, magical tool, the newspapers hear of William and validate the good work that William has done by bringing wind-powered electricity to his village. Science then seems to win not just William's heart, but the spirit of the larger community.

However, William does not completely reject magic the way people like his devoutly Christian father do. Though William respects Trywell's disdain for magic, William does not entirely abandon the thought of magic at work in people's lives. Many of his references to magical events have an ironic edge, but he rarely dismisses magic as false, unconvinced that a world without magic can entirely explain all of the strange, frightening, or wonderful occurrences he has heard of. One of the few times that William does directly contradict magic is in the treatment of disease, especially when he advocates for Malawians to seek Western medicinal treatment for the diagnosis and prevention of HIV and AIDS. In other areas, William maintains the ideas that his fellow rural Malawians have about magic, such as the stories about powerful chiefs that brought Malawian people fame or glory. As William grows more comfortable in the ways that science can explain the world, he does not reject the idea that magic may have some influence over people's lives. William only seeks to introduce scientific inventions or principles that may benefit the Malawian people. The book as a whole suggests that science and superstition can coexist and enrich the lives of people in their own ways. While science can improve the physical conditions of people's lives, superstition enlivens the imagination, stories and culture of Malawi.

SYMBOLS

Symbols appear in **teal text** throughout the Summary and Analysis sections of this LitChart.

THE WINDMILL

Built exclusively from recycled materials, William's windmill represents the triumph of human invention in the face of poverty and starvation. It is a testament to William's personal aptitude for science, built from his independent study of physics textbooks rather than a formal school education. Indeed, William only has time for the windmill because he is forced to drop out of formal schooling when his family is unable to pay the high school fees. William's success with the windmill then symbolizes the achievements that are possible when individuals in tough situations apply their intelligence, hard work, and effort to inventions and innovations that can improve the quality of life in developing countries. William did not need the Malawian government or foreign aid organizations to step in and give him money to better his life; he only needed to be assured of the basic necessities for survival and given the chance to realize his own dreams for the future. The windmill thus stands for William's desire to improve life for himself and his family, and the practical ways that William can repurpose the things that other people throw out in order to accomplish this goal.

William's windmill is both a practical and a metaphorical life saver for his family. In the practical sense, the windmill provides free electricity that allows the Kamkwamba family to have light at night, charge cell phones, and eventually power a water pump that makes it possible to have two harvests each year. In the metaphorical sense, William's windmill earns him the attention of Malawian professors and officials who boost William's story and help him earn funding and educational opportunities that benefit the entire village. William also passes the advantages of the windmill on to the next generation, using

his fame to garner more support for education efforts in rural Malawi (and Africa at large), so that young students are given the chance to develop their own "windmills" – whatever inventions those windmills might turn out to be.

QUOTES

Note: all page numbers for the quotes below refer to the William Morrow edition of *The Boy Who Harnessed the Wind* published in 2010.

Chapter 1 Quotes

Before I discovered the miracles of science, magic ruled the world.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 3

Explanation and Analysis

When William was a child, he had no way of learning about the properties of science that are widely accepted as the laws of the universe. In rural Malawi, the influence of magic on people's lives is just as important as electricity or radio waves have become to modern life in many developed countries. Once William has the chance to gain a more thorough education with up to date scientific information, science replaced magic as the governing force of William's world.

Yet though science and magic occupy similar places in William's mental conception of the world, there is a significant difference between how William feels about each one. While science is a "miracle," able to accomplish great things that benefit people all over the world, magic is an almost exclusively negative force. Magic rules the world through fear and intimidation, while science invites people to improve their situations through experimentation and discovery. For William, science is a far better ruler than magic.

Although Geoffrey, Gilbert, and I grew up in this small place in Africa, we did many of the same things children do all over the world, only with slightly different materials. And talking with friends I've met from America and Europe, I now know this is true. Children everywhere have similar ways of entertaining themselves. If you look at it this way, the world isn't so big.

Related Characters: William Kamkwamba (speaker), Geoffrey, Gilbert

Related Themes:

Page Number: 19

Explanation and Analysis

Kamkwamba spends significant time in the book detailing the everyday activities of his life in Malawi, including what he and his friends did for fun as children. William, Geoffrey, and Gilbert love playing with trucks that they make out of recycled cartons and beer bottle caps. While Kamkwamba recognizes that most American or European children do not look through the trash for objects to recycle into toys, he gets to the heart of what is similar about all children. There is a common impulse to have fun with the things that are available in one's surroundings, whether that includes crafted plastic toys or rustic handmade trucks. Kamkwamba asserts that Malawian children share similar outlooks to children around the world, even if the superficial circumstances of their lives are very different. Finding those similarities between humans is ultimately more useful than focusing on the differences, so that people from many cultures can come together instead of staying divided.

Chapter 2 Quotes

We traveled four hours north to the Wimbe trading center, where my relatives were waiting to greet us. They helped us move down the road to Masitala village and into a one-room house near Uncle John.
This is where my father became a farmer and my childhood began.

Related Characters: William Kamkwamba (speaker), Uncle John, Trywell Kamkwamba

Related Themes:

Page Number: 38

Explanation and Analysis

When William was one, his father, Trywell, decided to leave behind life in the city as a trader and small shop owner in order to become a farmer. While most Malawians do work in rural or agricultural fields, this change was still a huge readjustment for Trywell. Yet Trywell's reinvention of his self and his occupation are necessary for William's childhood to begin and for the events of this book to

happen. William learns from his father how to be flexible and adapt to whatever circumstances that life throws their way. While Trywell might not have wanted to become a farmer in a small isolated village, he does what is best for his family. This motivation later inspires William to work hard to help improve their family's life and the lives of all rural Malawians through his inventions.

My first and only experience with magic had left me with a sore eye and hands that throbbed from bad medicine. With my luck, I thought, they'll probably become infected and fall off.

Related Characters: William Kamkwamba (speaker), Shabani

Related Themes: 

Page Number: 48

Explanation and Analysis

William has little to do with magic personally in the book, due to his father's disapproval of witchcraft and his one poor experience with the supposed sing'anga Shabani. Shabani promises to give William magical strength in the mangolomera ritual, by cutting into William's knuckles and rubbing specific roots and bone dust into the wounds. Shabani gives William a list of things that might cause the magic not to work, showing the cracks in the magical belief system that needs many potential reasons why the person might not feel the desired effects. When William finds out that the magic didn't work, he understands that Shabani has cheated him. Yet William remains unclear as to whether Shabani's specific ritual was "bad medicine," corrupting an otherwise useful ritual, or whether the whole concept of mangolomera is false. From that point on, William steers clear of magic for fear of what damage it can cause to his life, but does not go so far as to say that all magic is bad or false.

Chapter 3 Quotes

"We know this man has left behind some riches, and these treasures include his kids. We'd like to advise his brothers to take full control of these children. Make sure they finish their secondary education as they would have if their father had been alive. And in regards to the material wealth, we don't want to hear of troubles in the family as a result. If anyone here wants to help this family, help the children with clothing and school fees."

Related Characters: Mister Ngwata (speaker), Jeremiah, Geoffrey, Uncle John

Related Themes: 

Page Number: 51

Explanation and Analysis

When Uncle John dies, and Jeremiah and Geoffrey are left without a father, one of the village officials, Mister Ngwata, asks the rest of the community to step up and help these boys. This request reflects the community-oriented perspective of the book, as Kamkwamba celebrates the ability to help other people while asking nothing in return. He and his family do step in and help his cousins in times of intense hardship, though the famine makes it difficult for them to offer anything but the barest of help when the entire region is on the brink of starvation. William is later able to pay Geoffrey's school fees once he receives funding from foreign sponsors thanks to the fame of his windmill. Through all of these events, William prioritizes education as the greatest goal for himself and the other children in his community, seeing it as the best way to improve everyone's lives.

Chapter 4 Quotes

Since we learned everything through experimenting, a great many radios were sacrificed for our knowledge. I think we had one radio from each aunt and uncle and neighbor, all in a giant tangle of wires we kept in a box in Geoffrey's room. But after we learned from our mistakes, people began bringing us their broken radios and asking us to fix them.

Related Characters: William Kamkwamba (speaker), Geoffrey

Related Themes: 

Page Number: 69

Explanation and Analysis

William and Geoffrey increase their knowledge of radios and electricity through experimentation, as the Wimbe primary school is not equipped to teach the students these complex scientific concepts. The boys' natural curiosity leads them to explore radios when their formal schooling is not enough to satisfy their desire to know how the world works. Kamkwamba praises this self-taught education just as much as formal schooling, using their mistakes and

experiments to fill in the gaps left by their small rural school.

This education is also more practically useful for William and Geoffrey. Though many Malawians use and buy radios, William and Geoffrey push further into understanding how this technology works. William and Geoffrey are able to translate that interest into a radio-repair business that helps them earn money and benefits the entire community. Self-taught education, in collaboration with enhanced formal schooling, is a significant part of Kamkwamba's goal to improve life in rural Malawi.

❝ Nsima isn't just an important part of our diet—our bodies depend on it the same way fish need water. If a foreigner invites a Malawian to supper and serves him plates of steak and pasta and chocolate cake for dessert, but no nsima, he'll go home and tell his brothers and sisters, "there was no food there..."

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 72-73

Explanation and Analysis

William and his family make most of their living and food from their farm in rural Malawi, like the majority of Malawians. Their main crop is maize, a variety of white corn that is milled and combined with hot water to make a small corn cake called nsima. Nsima is used as the base of every meal, much like bread or tortillas in European or American cuisine, and often forms more than 50% of the average Malawian's nutritional content. This dependence on nsima is an important part of Malawian culture, marking one of the things that distinguishes Malawi from other African cultures—but it also opens up Malawains to a vulnerable food system. If maize crops are bad, and a family cannot make nsima, there are very few options for rural farmers to make up the difference in food. Nsima is important to Malawians, yet that importance is also a drawback when it comes to survival.

❝ We call this period "the hungry season." In the countryside, people are working the hardest they work all year to prepare their fields, but doing so with the least amount of food. Understandably, they grow thin, slow and weak.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 76

Explanation and Analysis

William and his family, like much of the Malawian population, depend on their maize farm for the majority of their food throughout the year, but run into trouble during the months after the harvest when all of their stored grain runs out. This season, from January to March, is known as the hungry season. Storing up food for those months becomes a complex calculation of balancing what the Kamkwamba family needs in the moment, what they can save for the hungry season, and what they will need to sell to get seed and fertilizer for the next year. Skimping on the next year's profits will lead to a smaller crop then, and an even worse hungry season the next year. Furthermore, Malawian farmers are forced to do a lot of the work plowing fields and readying their land for the next year's crop when they are on strict rations of their previous year's storage. Any added stress in the work of keeping the farm running, whether from strange weather patterns or government policies, can upset the delicate equilibrium of planning for the hungry season and living for today. This hungry season is one of the biggest obstacles to survival in Malawi.

Chapter 5 Quotes

❝ But bringing electricity to my home would take more than a simple bicycle dynamo, and my family couldn't even afford one of those. After a while I kind of stopped thinking about it altogether and focused on more important things. One of them, for instance, was graduating from primary school.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 83

Explanation and Analysis

William has an intense desire to improve the quality of his life in rural Malawi, which he channels into a project to bring electricity to his house. However, the number of obstacles to this plan seems insurmountable as William deals with the work of the farm, the business of surviving each year, and going to school in Wimbe. William's big dreams of helping his family require him to gain a better education than the average child from a farming family receives in rural Malawi. Kamkwamba, though he was a self-motivated and naturally

talented engineer, understands that his own experiments and projects can only take him so far. Before William can truly strike out on his own and use his intelligence to create inventions that ease the burden on rural farmers, he has to gain the education that he can from the primary school. William's projects and his schooling are his two top priorities during his childhood. Once he graduates from primary school, William is better equipped to take his education into his own hands, despite how crazy this plan may seem to others in his village who deal with the same difficult conditions.

"One pail equaled twelve meals for my family, meaning six pails equaled seventy-two meals for twenty-four days. I then counted how many days before the next harvest: more than two hundred and ten…

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 89

Explanation and Analysis

After the strange harvest in 2001, William and his family face the famine that swept across Malawi in 2002. William counts through what grain his family has managed to save, then calculates how many meals they have left for the long span of days until the next harvest will replenish their food. Though the stakes of this equation are heightened at this time, considerations of how much grain the Kamkwambas have and how much they need are a constant part of life in rural Malawi. William, though still a young boy, is intimately aware of the business aspect of survival in Malawi, where a certain amount of food means life and any lower amount means potential death. Breaking this complicated calculation, ignoring other factors that might spell a miracle or a disaster for the family, highlights just how devastating this famine was for much of Malawi. The Kamkwamba family, like many other farming families at this time, must find some way to make the massive gap between the food that they have and the food that they need shrink down to a survivable amount of days.

"I'm ashamed to see this school broken in such fashion. We should tear the whole place down and start from scratch, build it again strong and proud! Teachers' houses also need to be shipshape, and students need new desks and books!"

Of course, the crowds cheered and applauded at this. But instead of buying us new desks, he sent men into our blue gum grove to chop down our trees to build them. Even then, there weren't enough.

Related Characters: President Bakili Muluzi, William Kamkwamba (speaker)

Related Themes:

Page Number: 95

Explanation and Analysis

When President Muluzi visits Wimbe in 1999, he promises to repair and refurbish the Wimbe primary school, to the great delight of William's village. Most of William's fellow villagers also put a large emphasis on education and especially the education of their children, though few are as proactive about finding their own ways to get schooling as William is. Though Muluzi professes to prioritize education for rural Malawians just as much as they do, he is not actually helpful to the Wimbe school. In fact, Muluzi harms the village of Wimbe by cutting down trees and contributing to the damaging deforestation of Malawi, without even using the trees for their supposed projects. Kamkwamba and his fellow villagers seem to understand that they cannot depend on the government to follow through on the ventures that are going to truly affect the quality of life in rural places. If the people of Wimbe want quality education for their children, they will have to find some way to provide it without government aid.

Chapter 6 Quotes

"Several large pieces of skin remained in the pot, and I thought about my sisters and parents who were at home, probably hungry and dreaming of meat on this Christmas Day. But I didn't dare ask Charity to allow me to share. It was a well-known rule that whatever happened in mphala stayed in mphala.

Related Characters: William Kamkwamba (speaker), Charity

Related Themes:

Page Number: 120

Explanation and Analysis

Christmas of 2002 is a dark time for William, in the midst of the famine, though he is able to bring some light by hatching a plan to get a free goat skin from the butcher and eat it with his cousin Charity. Charity, older than William and living at the mphala (home for unmarried boys), is not as faithful to the principles of helping family and community as William is. Though the boys cannot eat the entire goat skin themselves, William knows that Charity will not let him take some of the "meat" back to his family. While this action does suggest some selfishness on Charity's part, it also points to the importance of individual work in modern Malawi. Communities still pull together to help out when they can, but Kamkwamba also describes a shift towards people working for their own advancement and individual gain. Kamkwamba supports this individual focus, praising the hard work of specific people and the profits that they gain, as long as it doesn't actively harm others. As William and Charity were the ones who went to the effort of procuring the goat skin and making it somewhat edible, they are the ones who get to enjoy the fruits of their labor.

Chapter 7 Quotes

❝ My parents never scolded Rose for taking more than her share. But Doris soon reached her breaking point. Over the past weeks she'd become paranoid, fearing she wouldn't get any food at supper and my parents wouldn't help her.

Related Characters: William Kamkwamba (speaker), Trywell Kamkwamba, Agnes Kamkwamba, Doris, Rose

Related Themes:

Page Number: 126

Explanation and Analysis

The small amount of food that the Kamkwambas have to share is supposed to be distributed fairly among all the children, but Rose fights to take more and makes Doris worried that soon she will get nothing. During the time of famine, William's sisters are affected in different ways based on their physical strength before the food crisis began. Rose, naturally thin and small like her mother Agnes, feels the hunger worse than Doris, who is somewhat heartier with the tall frame of their father Trywell. Though all the Kamkwamba siblings face the same hunger, they must work at different rates to survive the famine period. Agnes and Trywell do not enforce equal portions for Doris and Rose, letting them learn that they will have work for themselves in the greater world in order to survive. While Trywell advocates for helping others as much as possible, he still recognizes that his children have to learn about the rules of survival and be able to take care of themselves. Life is not fair in general, and especially not in Malawi during famine time.

❝ My own problems didn't seem so important; the hunger belonged to the entire country. I decided to put faith in my father's word, that once we made it through the hunger, everything would be okay.

Related Characters: Trywell Kamkwamba, William Kamkwamba (speaker)

Related Themes:

Page Number: 134

Explanation and Analysis

When the school semester after the famine arrives, William is intensely disappointed when his family cannot afford the school fees so that he can attend. Yet William realizes that three quarters of the students at Kachokolo Secondary also have to drop out due to lack of funds, and begins to see that the problems in Malawi are much larger than his own personal concerns. The famine is incredibly tough for the Kamkwamba family, but William cannot use this opportunity to become selfish or start to care only about his woes. All of Malawi is experiencing this famine, and William's father Trywell advises William to use this chance to come together with his community instead of focusing only on himself. William later fulfills that promise by addressing the lack of education in rural Malawi when he has the funds and sponsorship after the TEDGlobal conference. William uses the communal hardship of the famine to learn how to survive and help others, elevating his entire village so that hunger and lack of education will be less prevalent for future children in Malawi.

Chapter 8 Quotes

❝ No magic could save us now. Starving was a cruel kind of science.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 151

Explanation and Analysis

As the food crisis reaches its lowest point, William sees others from his district of Malawi suffering from all sorts of ailments that come from lack of nutrition. One of the worst of these is kwashiorkor, a condition where a person's body swells up due to lack of proteins in the blood. Those afflicted cruelly look fat and well-fed though they are malnourished to the point of starvation. Many in William's village want to use magic to treat these illnesses, but there is nothing a witch doctor can do to address the sheer lack of food in Wimbe and other rural districts. William later learns the scientific basis of these diseases, finding out exactly what is happening in the body when it is forced to go weeks without proper nutritional content. Yet this is one of few times that science is not able to help William improve the lives of his family and villagers, as understanding how starvation works does not produce more food for the district when nothing is available. Indeed, neither magic nor science are able to stop the damaging effects of the food crisis. Yet William has hope that increasing his ability to bring science and technology to rural Wimbe will stop another potential food crisis before it starts, and bypass the "cruel science" of starvation completely.

Chapter 9 Quotes

❝ And through them, I was able to grasp principles like magnetism and induction and the differences between AC and DC. It was as if my brain had long ago made a place for these symbols, and once I discovered them in these books, they snapped right into place.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 166

Explanation and Analysis

William's education in his childhood was a patchwork of formal, if somewhat underwhelming, schooling at the Wimbe Primary School and informal experimentation where William explored for himself how the machines and environmental processes of his everyday life work. When William finds books on science, physics, and energy in the Wimbe Primary Library, he finally learns the specific terminology and underlying principles for the engineering questions he has been investigating. One of the books helps explain the difference between AC (Alternating current) and DC (direct current) that William has already experienced first hand by trying to use the AC power from a bicycle dynamo in a radio that usually functions on DC batteries. William has an incredible natural aptitude for understanding the scientific principles of engineering and physics, but he needs the formal terminology provided by these upper-level science books in order to fully use these principles to create inventions that will bring the benefits of science to his village.

❝ What is this? I thought. Pulling it out, I saw it was an American textbook called Using Energy, and this book has since changed my life.

The cover featured a long row of windmills - though at the time I had no idea what a windmill was.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Related Symbols:

Page Number: 167

Explanation and Analysis

At the small Wimbe Primary School library, William finds a few science textbooks written in English that completely change his perspective on the type of inventions that are possible. The biggest influence on William's life as an inventor is the information he finds on windmills. He has been looking for a way to bring electricity to his family for years, understanding that affordable electricity means a more comfortable life for a Malawian who would no longer have to depend on kerosene lamps for light after dark, as well as a huge practical benefit if William can use the electricity to power a water pump that will allow the family to plant and water their fields twice a year. Though William already had these big dreams, he needs the information from the science textbook to find out exactly how to make the dream a reality. Without access to the internet or television, as well as limited information available from the government-controlled radio stations, books like *Understanding Energy* are a huge window into a new way of life for William. Giving him the tools to build a windmill allow William to take his future into his own hands and escape the cycle of rural poverty that traps many Malawians. Just one book represents all the education that

William's natural intelligence needs to make huge gains for himself, his family, and his community.

❝ Within a few meters, I entered the scrapyard and stopped. Behold! Now that I had an actual purpose and a plan, I realized how much bounty lay before me. There were so many things: old water pumps, tractor rims half the size of my body, filters, hoses, pipes, and plows.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Related Symbols:

Page Number: 176

Explanation and Analysis

As William gets serious about making a windmill to bring electricity to his family's farm, he needs the materials for this machinery. With no money to buy raw materials, and a low chance of finding such materials in the Wimbe trading center anyway, William finds resourceful ways to recycle objects that would otherwise be considered trash to create his windmill. An abandoned scrap yard used to be a play area for William and his friends as children, but becomes a boon of recyclable materials when William begins to look at this yard for machinery for his project. There is considerable work involved in separating the usable machinery from the old, rusted junk, but William is not afraid of the recycling effort necessary to make his dream a reality. Where other people see a pile of unusable machines, William sees the potential to bring these things back to life and revitalize his community with a new machine that will improve their quality of life.

Chapter 10 Quotes

❝ At least with daughters, like my sister Annie, a father can hope they'll marry a husband who can provide a home and food, even help them continue their schooling. But with a boy it's different. My education meant everything to my father.

Related Characters: William Kamkwamba (speaker), Annie, Trywell Kamkwamba

Related Themes:

Page Number: 183

Explanation and Analysis

The famine in Malawi disrupts the normal patterns of life for the Kamkwamba family in huge ways, but William and his father Trywell are most upset that they do not have the money to pay William's school fees because food prices are so high. Education is the highest goal for William and his father, because a better education represents a chance to break free of the back-breaking and unstable work of living off a farm in Malawi. William's father, a smart and capable man, has to depend on the uncertainties of the weather and the dubious offer of government aid to keep his farm afloat and feed his family every year. For his son, Trywell wants more than that. Due to the somewhat conservative gender roles in Malawi, men are still seen as the primary breadwinners for a family, with the responsibility to make a living for themselves. Where women sometimes depend on their husbands for security and a good life, men are expected to provide for themselves. If William is not able to go on to secondary school, the best he can hope for is to become a farmer like his father. Trywell wants to give his son more than this difficult lifestyle and therefore places huge significance on William's schooling.

Chapter 11 Quotes

❝ Just then a gust of wind slammed against my body, and the blades kicked up like mad. The tower rocked once, knocking me off balance. I wrapped my elbow around the wooden rung as the blades spun like furious propellers behind my head. I held the bulb before me, waiting for my miracle. It flickered once. Just a flash at first, then a surge of bright, magnificent light. My heart nearly burst.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Related Symbols:

Page Number: 203

Explanation and Analysis

After months of hard work and struggle, William has finally reached the moment of truth for his windmill. He describes the trip up the windmill's tower, showing the physical risks that he undertakes in order to make his windmill dream a reality. William is willing to put everything aside for his scientific goals and sees science as the highest goal that anyone can pursue.

Calling back to the very opening of the book, when William

called science a miracle, William now refers to the potential success of his windmill as a miracle. Unlike the generally negative affects of magic, science has the power to consistently improve conditions in his village. Using a lightbulb for this test symbolically shows how William sees science as bringing light to the darkness of his life in poverty. Light is often used as a metaphor for better ideas and increased ability to do good in the world, just as William uses the electric power of his windmill to help those struggling with the conditions of poverty in his rural village.

Chapter 13 Quotes

❝ In Malawi, we say these people are "grooving" through life, just living off small ganyu and having no real plan. I started worrying that I would become like them, that one day the windmill project would lose its excitement or become too difficult to maintain, and all my ambitions would fade into the maize rows. Forgetting dreams is easy. To fight that kind of darkness, I kept returning to the library every week.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Related Symbols:

Page Number: 224

Explanation and Analysis

Though William has achieved the huge success of his windmill, he still wants to return to school so that he does not fall into complacency and stop striving for a better future. Those in Malawi without the benefit of an education can easily be swayed into forgetting their dreams or goals of improvement. Unfortunately, the school fees in Malawi are often too high for rural families to afford, and many Malawian students cannot continue past primary school. Kamkwamba sees that it is imperative to remain mentally stimulated in order to avoid giving up on his dreams, and so he takes it upon himself to go to the library when he can't afford to go to formal school. He goes on to advocate for greater availability of higher education in Malawi so that fewer students will be forced out of school or have to struggle on their own in order to continue learning. Education is one of William's biggest priorities because it shows him the many possibilities open to him if he stays committed and constantly strives to improve his life.

❝ But Geoffrey was scared we would be arrested by the authorities for messing with their frequencies. People were also saying this nonsense about my windmill: "You better be careful or ESCOM power will come arrest you."

If the first people to experiment with great inventions such as radios, generators, or airplanes had been afraid of being arrested, we'd never be enjoying those things today.

"Let them come arrest me," I'd say. "It would be an honor."

Related Characters: William Kamkwamba (speaker), Geoffrey

Related Themes:

Related Symbols:

Page Number: 227

Explanation and Analysis

When William and Geoffrey begin experimenting with placing their voices over the frequencies of government radio stations, Geoffrey is afraid that the government will punish them for interrupting its control of this media. While others in the village also caution William against continuing to make his inventions outside of government-approved channels, William is more interested in going around the inefficiency and corruption in the Malawian government in order to directly benefit the people of Malawi. He sees a long line of inventors throughout history who went against the accepted policies of the day in order to effect real change in people's lives. While the Malawian government struggles to meet the needs of the Malawian people, William responds immediately to the things that will do the most good in the village. His inventions work toward the common benefit of all without the price that government services for the radio or electricity require. Kamkwamba advocates for more individual effort in the fields of technology without waiting for government help or permission, and celebrates the somewhat revolutionary role of inventors.

Chapter 15 Quotes

❝ But the most amazing thing about TED wasn't the Internet, the gadgets, or even the breakfast buffets with three kinds of meat, plus eggs and pastries and fruits that I dreamed about each night. It was the other Africans who stood onstage each day and shared their stories and vision of how to make our continent a better place for our people.

Related Characters: William Kamkwamba (speaker)

Related Themes:

Page Number: 267

Explanation and Analysis

Though William is in awe of all the new technology, such as the internet, and the wealth, such as the hotel breakfast, that he finds at the TEDGlobal conference, it is truly the connections he makes with a whole network of African innovators that makes the TED conference such a life-changing experience for him. This is the first time that William has truly been in the presence of such a large group of intelligent and influential people who share the same vision for how technology can change the harsh circumstances of daily life in many African regions. The other inventors, scientists, doctors, and investors inspire William, helping him to believe that his grand dreams of bringing electricity and education to rural Malawi are not out of his reach.

While the technology, funding, and support that TEDGlobal provides to William is important, none of that would matter without the enriching perspectives on the future of Africa that William gains from this meeting. Most significantly, it is other Africans – not foreign aid organizations, government officials, or charity workers – who show William the amazing things that are possible for his country and his continent. William comes away from TEDGlobal knowing that people can truly improve Africa, and he is then able to infuse his book with that same hopeful energy.

> Erik wasn't a biological African (he was raised in Kenya and Sudan), but what he said summed up our crowd perfectly:
>
> "Africans bend what little they have to their will every day. Using creativity, they overcome Africa's challenges. Where the world sees trash, Africa recycles. Where the world sees junk, Africa sees rebirth."

Related Characters: William Kamkwamba (speaker)

Related Themes:

Related Symbols:

Page Number: 267

Explanation and Analysis

At the TEDGlobal conference, William is able to hear about many different African inventors and entrepreneurs who are doing their best to change the circumstances of poverty or struggle in their home countries through efforts of recycling, rebirth, and reinvention. The raw materials available to many African innovators are not the ideal components for making their goals a reality, but Kamkwamba asserts that Africans are adept at using whatever they can to realize their dreams. William himself used this process by reclaiming abandoned machinery parts to build his windmill, as well as recycling trash into many of his other inventions throughout the book. The process of recycling the old gives new life to William's village, and indeed many other places in Africa where resourceful people see new potential to use things that others threw out as useless. Kamkwamba imagines that this practice can eventually give Malawi, and all African countries, the bright future and comfortable lifestyles that they desire, through hard work and constant reinvention of all the materials they have in front of them.

> I took a deep breath and gave it my best. "After I drop out from school, I went to library... and I get information about windmill..." Keep going keep going. . . "And I try and I made it."

Related Characters: William Kamkwamba (speaker), Chris Anderson

Related Themes:

Related Symbols:

Page Number: 268

Explanation and Analysis

At TEDGlobal 2007, William presents his windmill project to the audience, though he is so nervous that all of his English skills desert him on the stage. Still, William pushes through this stage fright and manages to encapsulate the main message of his journey in response to the questions that curator Chris Anderson asks. Throughout the book, Kamkwamba has praised those who work hard to achieve their dreams, and has striven to be one of those self-motivated people who improve life for themselves and others. William does this primarily through scientific methods, bringing increased technology and science education to his village in Wimbe by building a windmill. The journey to creating a windmill is not easy, especially given that William's family has just survived a famine and has no money to send William to school, but William is able to

succeed through his own hard work despite the obstacles placed in his path. This effort, combined with the support of William's family and friends, eventually pays off as William is recognized for his commitment, intelligence, and perseverance by the entire audience at TEDGlobal. From this beginning, William hopes to apply the motto: "try, and make it" to many different projects meant to raise the quality of life in emerging African countries. Though William might not have the English vocabulary at this point to express exactly what he means by this motto, his optimistic philosophy of how successful Africa could become hinges on the combined struggle of many African inventors and innovators who keep trying until they make it.

Epilogue Quotes

❝ My fellow students and I talk about creating a new kind of Africa, a place of leaders instead of victims, a home of innovation rather than charity. I hope this story finds its way to our brothers and sisters out there who are trying to elevate themselves and their communities, but who may feel discouraged by their poor situation.

Related Characters: William Kamkwamba (speaker)

Related Themes: 

Page Number: 286

Explanation and Analysis

At the end of William's journey from surviving famine to becoming a scientist, he hopes to reach out to others who may be in similar situations. William draws strength and inspiration from the stories of other people who have lived through experiences like his, sometimes much worse. Throughout the book, William has noted people he met who escaped poverty and gained an education as he dreamed of doing. Now finally at the African Leadership Academy in South Africa, William is surrounded by students who have lived through similar tough environments like what he dealt with in his childhood. Together, William and his classmates imagine practical ways they can improve conditions in Africa, but William also recognizes the emotional support that people need in order to work for themselves and accomplish the goal of changing their community for the better. Whether this change means increased access to education, better health care, wider availability of education, or some other cause, William sees his book as a success story that can lift other people up.

SUMMARY AND ANALYSIS

The color-coded icons under each analysis entry make it easy to track where the themes occur most prominently throughout the work. Each icon corresponds to one of the themes explained in the Themes section of this LitChart.

PROLOGUE

William Kamkwamba describes climbing the tower of a machine that he has just built, as people from his village gather to watch. He notices imperfections in the machine's crude frame, remembering the journey he took to find each piece and give it new life. He brings wires up to the top of the tower and knots the final dangling wires together.

Kamkwamba does not specify exactly what the machine is as this point, though it is easy to guess from the book's title that it is a windmill. It is also clear that this machine has been a labor of love for William that took great effort and uses recycled parts, starting the theme of recycling and reinvention in the book.

William removes the bent wire that keeps the machine's blades from spinning. He holds his breath, as the villagers down below wait to see if his crazy schemes have paid off. Everyone erupts into cheers when the wind-driven movement of the machine's blades is able to produce enough electricity to illuminate a lightbulb.

As this book is a non-fiction memoir, the suspense of whether William will be successful or not is already answered for any one who knows William's story. The focus of the book is thus on the journey William took to build the machine. Everything that William sacrificed and learned along the way is more important than the final outcome.

CHAPTER 1

Before William discovered science, he says, he was terrified of magic. His earliest memory is of a time when his father, Trywell, saved him from magic. When William was six, he ate some bubble gum given to him by other boys playing in the street. The next day, a man comes to William's house and tells Trywell that someone has stolen a bag of bubblegum. William is scared that this man will send a sing'anga (witch doctor) after him for eating the bubble gum.

Magic and science are at odds from the very beginning of the book. In this example, magic takes a special treat for William (who does not often get bubblegum or sweets) and turns it into something dark. Magic is often a negative force in William's life, whereas science will act as a more positive force.

William goes to the forest and tries to force himself to vomit up the bubble gum so that a witch doctor won't be able to blame him for the theft. When William can't throw up, he runs back to his father and confesses his crime. Trywell goes back to the trader who originally owned the gum, explains that William didn't know it was stolen, and pays a full week's wages for the bag. That night, William feels as though he has been saved from certain death, but Trywell just laughs at the incident.

Though Trywell laughs at the circumstances, he still helps William when William is truly afraid. This memory shows that William sees his father as someone who will always support and protect him, no matter the personal cost. An entire week's wages is no small matter to the family, as will become clear in later chapters when William outlines the tight profit margins of a Malawian farmer.

Trywell, William's father, is a strong man who does not fear magic even though he still tells the traditional magic stories. One of William's favorite magic stories tells of the Battle of Kasunga. A young princess of the Chewa people is killed by a black rhino, so the Chief of the Chewa people contracts a magic hunter named Mwase Chiphaudzu to kill the menace. Mwase kills the rhino and is awarded a potion of the Chewa lands as a prize.

Trywell may not believe in magic, but he still perpetuates magic's influence on Malawian children through these stories. William's outlook on magic is far more ambiguous, for as much as William clearly admires characters from the stories and wants to be a powerful, magic person, William does not seem to trust magic in his own life.

Yet the Ngoni people, fleeing war in the Zulu kingdom of South Africa, settle in the land that Mwase now rules. The Ngoni decide to eliminate the Chewa so that they will no longer have to compete for resources. When Chief Mwase discovers this plot, he magically transforms his warriors into blades of grass and kills all the Ngoni warriors when they try to invade the Chewa mountain. The mountain was renamed to commemorate this battle, and William explains that the mountain looms just past his village and the town of Kasungu.

The story briefly sketches out the harsh reality of survival in Malawi. As the Ngoni people see it, the Chewa people must die in order for their own people to live. As the mountain of the story looms over the village, it is a reminder that this bargaining or exchange of one person's life for another's death is also influential in William's life – especially when times of famine come.

Trywell learned these magic stories from William's grandfather. Grandpa is old enough that he remembers Malawi before farming cleared the dense forest and wild animals became scarcer. When Grandpa was a boy, his grandmother was eaten by a lion and the British authorities shot the lion so it would not eat anyone else. Another story tells of Grandpa finding a man who had been killed by a snake bite. Grandpa took a witch doctor to the body, and the witch doctor brought the man back to life long enough for the man to identify the snake who bit him.

William narrates Grandpa's magical stories in the same tone he uses to narrate the true events of his own life, making it seem as though the magical occurrences are just as real as the mundane details of William's life. Yet William does make a point to explain that the magical days of Grandpa's youth, real though they may have been, are gone. Everyday life in Malawi today is less wild and less magical.

Trywell used to go hunting with Grandpa and follow a sacred ritual before each expedition. Grandpa acted as the mwini chisokole, the owner of the hunt who plans when and where the hunt will take place and recruits other men to join the expedition. He was not allowed to sleep in the same room as his wife the night before the hunt so that he would be well-rested and free from distractions. Grandpa would boil a mixture of red maize and roots, then pass it out to all the men on the hunt. The men also told their wives to stay indoors while the hunt took place so that the animals would stay asleep.

William seems uncommitted to whether the rituals of the mwini chisokole actually helped the hunt be more successful, but the sheer amount of preparation shows how important hunting was (and is) to Malawian survival. As this hunt may be one of the only times in an entire year that a Malawain family would get to eat meat, the outcome of this hunt has great significance in sustaining people who are near constantly on the brink of not getting enough food.

As a boy, William did not worry about animals, but he was afraid of the Gule Wamkulu (a secret gang of magical dancers, supposedly the spirits of dead ancestors.) The Gule Wamkulu perform on stilts, and legend says they look for boys to take back to graveyards after their dances. Everyone is afraid of the Gule Wamkulu except for donkeys. William tries to be like a donkey, but he can't help but fear wizards who steal children to be soldiers in their witchcraft armies. Bewitched children trick more recruits into joining the army by feeding them human meat.

William's description of the Gule Wamkulu makes it clear that these dancers are actually men on stilts, rather than truly the spirits of the dead, but William still respects the place that the Gule Wamkulu hold in Malawian culture. As a child, the Gule Wamkulu were another example of the negative aspects of magic for William, and here he also brings in the idea that children are most susceptible to magic because they are not yet educated in the ways of wicked witches or bewitched children. Additionally, the "magic" properties of eating human meat are another reminder of the scarcity of food in Malawi. Though hungry children would understandably be tempted by fresh meat, the taboo on cannibalism is strong.

After the incident with the bubblegum, William is even more wary of witchcraft. William tries to protect himself by posting money (as witches are allergic to the rival evil of money) at his bed and praying his soul clean each night. Trywell scoffs at giving William kwacha bills to protect his room at night, believing that magic is nothing next to religious faith.

Money is also seen as evil in Malawian culture, as it is (at least in theory) in some areas of American culture. Whereas William seems to reject magic in favor of science, Trywell rejects magic for religion. William respects his father's faith more than he fears magic.

Trywell tells William a story about how he stopped believing in magic. In 1979, Trywell was riding in a truck to Lilongwe to sell dried fish. The truck suddenly flipped over and threw the men into the air, then started rolling toward the men when they all landed. The truck stopped just before it would have crushed Trywell, though many other people died. After that experience, Trywell knew he had been saved by the power of God and that magic had no control over his life.

Trywell's story echoes the earlier story of the Ngoni and Chewa people in that some people must die for others to live. Trywell does not dwell on the fact that other people were crushed by the truck, seeing only his own survival. This survival must have been the will of God, Trywell believes, for there was not either an earthly or magical reason that the truck would have stopped.

William respects his father's disdain for magic, but can't quite accept how a world without magic explains extraordinary men like Chuck Norris or Rambo. William and another boy who lives down the street talk about the amazing movies they see on TV and wonder at how these things are possible. All the village boys play a game called USA versus Vietnam that copies the war reels of the Vietnam war using spit shooters for guns. The team playing America always gets to win, because America has war magic.

The game that William and his friends play blurs the line between science and magic, as the boys see Americans as winners due to their war magic, while others might argue that the American military wins due to its superior technology. William and his friends also seem to blur the line between fantasy and reality, regarding the adventures of Chuck Norris and Rambo on the same plane as the war reels. Both kinds of films are very removed from the circumstances of Malawian life, though the boys certainly identify with the emotions behind these movies.

William's best friends are his cousin Geoffrey and Gilbert, the son of the chief of the Wimbe district. Gilbert's father is known simply as Chief Wimbe, though his name is Albert Moffat. William and Geoffrey love to go to Gilbert's house and watch all the people come to Chief Wimbe with requests and offerings. Chief Wimbe dresses like a businessman, not in feathers as the movies suggest. Everyone who goes to see Chief Wimbe must get through his bodyguard, Mister Ngwata, first.

Kamkwamba points out that Malawi's chiefs are far closer to American leaders (whether businessmen or politicians) in their style of dress, though the popular image of Africa would require all chiefs to wear tribal garb. Kamkwamba describes Chief Wimbe as closer to the mayor of a small town who is deeply involved in his citizens lives, in opposition to the official Malawian government that does not always address the needs of the people.

On this particular day, William and Geoffrey find Gilbert singing along to the radio in his room. They use their secret slang to say hello, shortening the French "bonjour" to "bo." The three boys decide to go to the Ofesi Boozing Centre and collect the empty cardboard beer cartons for toys and projects. William explains that children in Malawi entertain themselves much the same as children in America and Europe, just using different materials. William and his friends love trucks and build makeshift toy trucks out of the beer cartons, especially a popular brand called Chibuku Shake Shake that has a sturdy carton for making the body of a truck with beer-bottle-cap wheels.

William, Geoffrey, and Gilbert display the ingenuity and creativity that Kamkwamba prizes in Malawians by recycling trash to create entertaining toys. These cartons would have been seen as useless for people with other resources, but William and his friends use everything to its fullest potential. While American children might not play with beer carton trucks, they certainly play the same types of games with their plastic trucks. Kamkwamba notes how similar children's pastimes are all around the world.

William and his friends find many ways to improve their trucks and personalize them or scratch the logos of well-known truck models designs into the wheels. As they get more ambitious, the boys even build wagons like American go-carts that can carry one person while another pulls a rope to make the car race down the street.

Kamkwamba relates his childhood games to the childhood games of Americans, showing that these two cultures ultimately have a foundation in common. American commerce clearly has a lot of influence in Malawi, as Kamkwamba names many American truck models as his favorites.

The boys of Wimbe often race their go-carts to Iponga's barber shop, through the frequent power outages make it unlikely that anyone will get a full haircut in one sitting. They also go to Mister Banda's convenience shop whenever they have a few spare coins to buy fried goat and chips, and they play in the bushes when they don't have money. In the evenings, the women of the village prepare supper while the boys play soccer in the fields. Sometimes farmers from nearby villages stop by in the evening to barter with William's father for produce or maize.

Kamkwamba describes the average day in Malawi, as he hangs out in the town with friends or plays soccer, which is not that different from the average life of many Americans, even if the Malawians make do with far fewer material goods. Kamkwamba also subtly introduces the problem of power outages early on, an issue which William's inventions later in the novel will directly address.

When night fully falls, the children gather inside while Trywell lights a kerosene lamp and prepares to tell folktales. One of William's favorite stories is about the Leopard and the Lion. In the story, two little girls come to the house of an old man and fall asleep. The old man tells Leopard and Lion that he has food for them, and leads the animals back to his house. But the girls have already woken up and eaten the food, and there is only a note of thanks for the old man on the bed. The old man tells Lion and Leopard to wait in the garden, as he knows that they will eat him if he can't find them another meal. The old man hides in a large gourd, until Lion and Leopard are tired of waiting. The animals go into the house and see that there is no meal. They then see the old man's shirt sticking out of the gourd and drag the old man out. The old man tries to explain, but Lion and Leopard eat him.

Again the story addresses the topic of survival. Significantly, Lion and Leopard are not seen as the villains in this tale, as they simply have to eat in order to keep themselves alive. The old man is the villain for specifically trying to harm others who meant no harm to him. Additionally, had the old man been more careful about his hiding place, he would have escaped. The old man's own carelessness and hurry was his downfall, not the appetite of the animals. In Malawi, the natural law that everything must eat to survive is supported by a cultural tradition that does not punish people for using their own intelligence to help themselves survive, as long as they do not try to hurt others.

The moral of the Lion and Leopard story is: Always wish others well, as planning misfortune for others will come back to haunt you. Trywell is an excellent story teller, because he draws from experiences of his own life that are magical enough to seem like stories.

Trywell has learned the survival lessons of the Malawian stories through direct experience, but he still maintains a focus on helping others. From Trywell's life, William also learns how to survive while caring for his community.

CHAPTER 2

Trywell, William's father, lived in Dowa during the 70s and 80s working as a traveling trader rather than farming like the majority of Malawians. Malawi was under the control of President Hastings Banda at this time, a man who had worked his way up from a childhood in rural Malawian poverty to become a doctor in England and later to free Malawi from British colonial rule. In 1971, Banda forced the Malawian Parliament to make him Life President.

As much as Kamkwamba disagrees with President Banda's harsh control over parliament and the country, he seems to admire Banda's hard work and intelligence that made him a successful, educated man after being born in poverty. William clearly values education as a way to escape the rural farming life.

President Banda's administration functioned as a dictatorship, strictly regulating many aspects of Malawian life and punishing any who criticized his policies. Yet Banda's system was beneficial to traders and farmers in Malawi, and Trywell had many exciting experiences working with Muslim traders called the Yao. The Yao came to Malawi from Mozambique, converted to Islam, and began fighting with and enslaving the Chewa people in Malawi. Without the help of the Scottish missionary David Livingstone, the Yao and the Chewa would still be in conflict. Livingstone helped end slavery and began an infrastructure of schools and missions in Malawi. William says that the Yao are now accepted in Malawi, and that his mother is Yao.

Kamkwamba outlines how Banda both helped and hurt the Malawian people, but also created an atmosphere where Malawians do not generally trust the government. Kamkwamba admires David Livingstone much more, especially for the work he did founding schools in Malawi. Kamkwamba suggests that Malawi is continuing to develop into a more tolerant and inclusive place, helped by efforts to bring education to the rural districts of the country.

As a trader, Trywell worked at a huge bazaar in a town called Mangochi with goods and people from all over Southern Africa. Gambling and prostitutes were a constant temptation for traders, but Trywell resisted these money-draining activities. His friends began calling him the Pope (Papa in the Chichewa language) and teasing him for his virtuous lifestyle.

Trywell has one of the few occupations outside of farming in Malawi, able to reinvent his lifestyle to become a trader instead of a farmer. Yet Trywell is more careful with his money and his time than his friends, with ambitions for an even better life.

Trywell was a large man, and liked to fight while he was out drinking at night. He became legendary for his strength. On July 6th, the Malawian independence day that William compares to America's July 4th holiday, Trywell wanted to see his favorite reggae singer Robert Fulumani sing. Fulumani was so popular with Malawians that the line for the concert stretched out the door of the hall. With everyone pushing to get inside, Trywell pushes past a policeman and makes it into the concert.

Kamkwamba again draws a similarity between Malawians and Americans, celebrating their respective independence days in the same manner. Trywell sees the official police force as an obstacle to the average Malawian's freedom.

At Fulumani's concert, Trywell is ecstatic to hear the beautiful music. He begins dancing like a man possessed, until even Fulumani notices from the stage. Fulumani and the surrounding concert-goers ask for Trywell to be removed as he is a distraction. Trywell, crushed that his hero doesn't like his dancing, tries to reason with the security guards that everyone should be allowed to dance on independence day. For half an hour, policemen try to arrest Trywell, only succeeding when Trywell gets tired of fighting and agrees to spend the night in jail because he respects the law. After that night, Trywell is famous in the district for defeating 12 men with his strength.

Trywell fights for individual freedom over the order that the police enforce, another example of Kamkwamba's argument that individual strengths should be given free reign to make Malawi strong as a country. The interference of the government actually holds Malawians back in William's eyes. Kamkwamba will later uphold this principle through his inventions, but he respects his father's physical strength and personal motivation even if he does not approve of fistfights.

Trywell begins to watch a particular girl who comes to the market each morning, who William reveals will become William's mother, Agnes. Agnes notices Trywell staring and asks about his reputation. The stories of Trywell's fights excite her, but she refuses to be an easy catch and ignores Trywell. After months of staring and ignoring, Agnes loses patience and goes to talk to Trywell. Nervous, but determined not to let this chance slip away, Trywell tells Agnes that he wants to marry her. Agnes says she needs time to think.

Trywell once again demonstrated his ability to reinvent his life based on new goals, in this case trading in his single lifestyle for the woman he loves. Agnes both acknowledges the traditional gender roles in Malawi, praising Trywell for his strength and prowess in a fight, but then flouts those roles by choosing to be the initiator of their first conversation.

After the initial meeting, Trywell asks Agnes each day to marry him. Agnes' older brother, Bakili, warns Agnes about Trywell's reputation for fighting, but Agnes says she is in love with Trywell and his strength. Bakili tells Agnes' parents about Agnes' courtship, and their parents reveal that they were married after meeting in much the same way. The parents give their blessing and Agnes and Trywell marry six months later and have their first child, Annie.

Kamkwamba outlines the accepted rules of a marriage proposal in Malawi, through the families of the intended groom and bride. While Bakili sees the difficulties that Trywell's current disposition for fights could bring, Agnes sees under the surface to the potential that Trywell has to be a great man and strong provider for a family.

The first years of marriage are a dark time for Trywell. Trywell's lifestyle of drinking and fighting begins to anger Agnes, and many of Trywell's friends die or are put in jail. One of Trywell's clients, Reverend JJ Chikankheni, tells Trywell to turn his life over to the Lord, but Trywell doesn't listen. A few nights later, Trywell gets into another bar fight and is arrested.

The very thing that first attracted Agnes to Trywell becomes a source of conflict in their marriage. The reverend plants the seed of another way that Trywell can reinvent his life and leave the destructive fighting behind, but Trywell is not yet ready to listen.

While in jail awaiting trial, the prosecutor Mister Kabisa tells Trywell that he will let Trywell go if Trywell becomes a Christian and dedicates himself to God. Trywell agrees to get out of jail, but has a dream the next night where he hears the voice of God telling him to live a better life. Trywell rebuilds his life from that night on, becoming a wonderful husband and father.

Trywell is now able to put his life of fighting behind him and focus on the things that will improve his life and that of his family. This reinvention is necessary for William to become successful later in the book. Trywell ties this reinvention to his faith.

While Trywell had built a trading business, his brother John had established a farm near the districts of Wimbe and Kasungu where President Banda gave lots of support for farming estates. John worked his way up in an estate until he had enough money to start his own tobacco farm. In 1989, when William is one, John asks Trywell to come live in the village and work on the farm. Trywell agrees because he knows farming will give more profit than he makes now as a trader, and he has three kids to feed. The Kamkwamba family moves to the village of Masitala in the Wimbe district, and William's childhood begins.

Kamkwamba notes that moving to the countryside marks the start of his true childhood, following the path that William takes in the novel from farming in poverty to using his inventions to better his family's situation. All of these choices are tied to the tricky balance of survival in Malawi, as Trywell must do what is necessary to keep his family fed. John is another character that was able to start a profitable business from nothing, as Kamkwamba upholds the ideals of entrepreneurship and resourcefulness.

John gives Trywell one acre of land to plant burley tobacco to sell and maize to eat. William explains that maize is white corn, and says that his book will teach plenty about growing corn. Trywell helps John with his tobacco plants, making nursery beds in the dambo (marshy land with enough water and nutrients for good crops). It is hard, exhausting work, but Trywell is committed to making a better life for himself the way that Uncle John has done.

Part of the purpose of Kamkwamba's book is to educate Western readers about the true lives of rural Malawians, outlining their everyday struggles to stay alive in difficult farming conditions. The details about the work of growing maize allow Kamkwamba to show his readers the burdens on farmers that he wants to ease.

As the Kamkwamba family grows, Trywell also has to build a new house to better fit the children. After working in the fields, Trywell comes home and fashions bricks out of grass and clay, which he had to dig out of pits two kilometers away from the house. When all the bricks are made, Trywell builds a roof out of long stemmed grass. It takes two months to make a two-room house, the hardest thing Trywell ever had to do. After three years, the Kamkwamba family has enough money to hire men to add two new buildings to their house so that the four Kamkwamba sisters can have a room. William, as the only boy, gets his own room, which becomes his fortress and day-dreaming hideaway.

Trywell takes the raw resources of the Malawian land to make a home for his family, a practice that William later uses in the novel to better that home with more recycled material. Kamkwamba sees this as a quintessentially African narrative, undergoing a constant process of reworking the available resources to make something that will benefit the people who live there. Here Kamkwamba also shows some of the systemic sexism of his society, however, in that it's assumed that he should have his own room because he's a boy, whereas his four sisters all must share a room.

A man named Mister Phiri works on Uncle John's farm during the planting and harvesting seasons. Phiri has incredible strength from a magic ritual called mangolomera, where a paste of leopard and lion bones is rubbed into cuts in a man's knuckles. Only the toughest men can survive the mangolomera and earn superhuman strength. Phiri's power allows him to do amazing things, such as rip up trees from their roots and kill a black mamba snake, but it also pushes him to fight all the time.

Kamkwamba again explains how magic infuses Malawian culture, explaining extraordinary strength through magical means. Mangolomera is an example of the potential positive force of magic, but even it has its downsides. With magic, there is always a cost, and Kamkwamba questions whether the price of mangolomera is worth it by focusing on Phiri's destructive tendencies.

One afternoon, Phiri starts to argue with another worker named James because James did not buy some items Phiri needed from the market. William hears the commotion and goes to watch. Phiri starts punching James, and William knows that Phiri's mangolomera will soon beat James to death. Trywell comes to break up the noise, and Phiri begs Trywell to bring the sweet potato vines that act as kryptonite to mangolomera. With no vines nearby, Trywell grabs Phiri and locks the large man in his arms until Phiri can calm down. William cannot believe that his father is strong enough to defeat even mangolomera. Though James is not beaten that badly, Phiri's mangolomera rubs off enough that James gets sick the next day.

Kamkwamba uses the comparison of sweet potato vines to kryptonite, again tying together American popular culture with his life in Malawi. (Kryptonite is the green stone that inhibits Superman's strength in the American comic book.) Trywell is better at fighting than Phiri, even without magical help—the supposed usefulness of magic is outweighed by Trywell's natural strength. James' illness after even this short encounter with mangolomera shows that magic has the potential to be destructive to everyone it touches.

Phiri has a nephew named Shabani who boasts that he is a sing'anga who can perform mangolomera. William and Gilbert don't believe Shabani, but they cannot be sure. When William is nine, he is teased because he is small and not good at soccer. Shabani offers to give William mangolomera. William knows his father would disapprove, but agrees to do the ritual. Shabani tells William to meet him by the blue gum tree with twenty tambala (a smaller bill of Malawian money).

Though Kamkwamba has already stated that he is afraid of magic, he seeks to gain control over it by using it for his own purposes. In William's young group of friends, physical strength is the primary measure of a man, so much so that William is willing to go against his father's beliefs in order to gain this power.

One hour later, William meets Shabani at the tree. Shabani explains that he will start making cuts on the left hand first, as William is right-handed already and the left hand will need more strength. Shabani pulls out a matchbox of black ashes and mixes the "lion and leopard bones" with some material that he claims to have collected from the bottom of the ocean.

Kamkwamba is skeptical of Shabani's methods in hindsight, though it is unclear whether at the time he did believe that Shabani obtained these materials from the ocean. Throughout, Kamkwamba remains distant from the usefulness of this magic.

Suddenly, Shabani grabs William's left hand and cuts the knuckles. When William flinches, Shabani tells William not to cry or the mangolomera won't work. Shabani cuts each of William's knuckles and rubs the ash paste onto the wounds, then tells William he will have powers in three days as long as William does not eat okra or sweet potato leaves and keeps the ritual a secret.

Shabani seems to build in excuses for the possibility that the magic is not real, hedging his bets by explaining the ways that William might disrupt the magic rather than allowing for the fact that the magical ritual does not in fact increase a person's strength.

William spends the next three days at his grandparents' house in Dowa, waiting for his mangolomera to develop and doing odd jobs for his grandmother. On the fourth morning, William feels stronger and faster than ever. That afternoon, William looks for a boy to fight at the local soccer field. He steps on a boy's foot and picks a fight when the boy calls him out for his rudeness. William throws one punch, trying to temper his strength so the boy doesn't die, but the boy just laughs and beats William soundly.

Though William believes that the mangolomera has given him increased strength, it is also possible that he has built up his strength naturally by working for his grandmother. In the fight, however, it becomes clear that the magic has really had no affect on William's strength. William's confidence in the ritual made him feel stronger, but the mental benefits of the ritual are not enough when actually put to the test.

William's uncle finds William after the fight and yells at William for picking a fight with a boy twice his size. Humiliated, William goes home and confronts Shabani about the failure of the mangolomera. Shabani asks if William bathed the day of the mangolomera ritual. When William says yes, Shabani explains that everyone knows that mangolomera doesn't work if you bathe. William knows he has been cheated, and worries that the "magic" ritual will cause an infection in his hands.

The downside to the mangolomera ritual is that there are several other factors involved that might explain why it didn't increase William's strength. Kamkwamba describes his distrust of this specific ritual as done by Shabani, but remains open to the possibility that mangolomera might actually exist when done by a real witch doctor.

CHAPTER 3

When William is nine, his family experiences the sad and unexpected loss of Uncle John. Uncle John collapses in the tobacco field from untreated tuberculosis, and Trywell rushes to get a doctor from the hospital in Kasungu. Uncle John passes away before Trywell can return. It is the first time that William has ever seen his parents upset. Geoffrey is distraught at the loss of his father, and William does not know how to comfort him. William is also ashamed that he does not cry loudly to properly show his grief, and he forces tears to come before he goes to talk to his cousin.

Another difficulty of survival in rural Malawi is access to health care. The closest hospital is in Kasungu, and many people cannot afford to travel so far, or pay for any services once they get there. Death is a somewhat common occurrence in William's village, but still incredibly tragic when it affects William's family directly. Kamkwamba describes the mourning rituals of Malawians, describing how important it is to display the right emotions and support the family during this hardship.

Later that day, William's uncles Musaiwale and Socrates arrive from Kasungu and arrange a wake for John. William cannot handle the press of people inside Uncle John's house, and he and Geoffrey step outside for air. Geoffrey asks William what will happen now, but William has no answer.

Uncle John's death has upset the delicate balance of the Kamkwamba family that was allowing them to survive on their farm. As the rest of the family pulls together to mourn John's death, the younger men like William and Geoffrey are left to wonder about their own futures in this transition.

Chief Wimbe is away, so Mister Ngwata comes to discuss funeral arrangements and the inheritance of John's property. Mister Ngwata comes out and tells the village that it is now their responsibility to help John's children with clothing and school fees. A man from John's wife's family asks that the remaining Kamkwamba family care for John's children like their own children. Trywell, Musaiwale, and Socrates then carry John's coffin to the graveyard.

The community pulls together after Uncle John's death, understanding that it is the village's responsibility to ensure everyone's survival after a tragedy hits. While every person must look out for his or her own survival, the village also bands together to help John's children.

The gravediggers are already at the grave site, and have dug the grave in the traditional Malawi fashion with a hidden compartment that fits the coffin exactly. This compartment protects the deceased from falling dirt and keeps the family from seeing dirt fall directly on their loved one. The gravediggers lower John's coffin into this compartment, then build a new floor for the hole with a reed mat and fill in the rest of the now empty-looking hole with dirt.

Kamkwamba gives more detail about Malawian cultural practices, describing the process of digging a grave. Part of the explanation is magical, as the villagers believe that the spirits of deceased people can come back if they are disturbed by the dirt, but part of the explanation is also a practical respect for the living members of the deceased's family.

After Uncle John's death, life on the farm is more difficult due to both grief and unsettled business matters. John's eldest son, Jeremiah, inherits the farm, but the whole family knows that Jeremiah does not have the right attitude for the hard work of running a farm. Trywell wishes that it weren't customary to give a man's holdings to his first-born, but he does not want to upset the village chiefs by taking charge of the farm himself. Jeremiah spends all his time drinking away John's profits in the town center, and Musaiwale takes control of half of the old farm. After two years, none of John's farm is left.

Jeremiah provides an example of the type of life that William would like to avoid, with no plan for the future and no help for the Kamkwamba family. Though everyone in William's family knows that Jeremiah will not be able to run the farm, they cannot go against the customary inheritance rules. Trywell is again concerned with doing the "right" thing, though it may have been better for the family in the long run if Trywell had taken possession of the farm.

Farming is also more difficult in general because of the new policies put in place by President Muzuli. President Banda's thirty-year dictatorship had made the Malawian people angry, and even the intimidation of the Gule Wamkulu is not enough to convince the people to stop protesting. Banda, unlike many African rulers, agrees to step down peacefully, and Bakili Muluzi is elected. Though Banda certainly had his own troubles, he at least helped the farmers in the "breadbasket" of the country with kits of fertilizer and seeds. Muluzi only cares for business and opens the market to foreign imports of crops. Soon, tobacco prices are so low that most Malawian farmers don't bother to grow it.

President Banda uses the magical Gule Wamkulu to inspire fear and force people to follow his policies, another example of the negative influence of magic in Kamkwamba's opinion. Yet though Banda was not a perfect leader by any means, Kamkwamba still recognizes the ways that Banda's administration was better for Malawian farmers. Muluzi might be a "fairer" president, elected through democratic means, but he is not in touch with the actual needs of the mostly rural population.

William's family continues to grow tobacco, but can no longer hire additional workers to help William and his cousins do all the farm work. Uncle Socrates loses his job as a welder on a large tobacco estate and moves back to the village with his seven daughters and his dog, Khamba. William at first wants nothing to do with Khamba, a tall, skinny dog with black blotches across his exotic white fur. Malawian dogs are usually not kept as pets, but used for security reasons. Yet, no matter how much William tells Khamba to go away, Khamba continues to follow William around.

The Kamkwamba family comes together once more as farming conditions get worse. They all must work together in order to help each family member survive. Unlike pets in some American families, dogs are not considered "part of the family" but simply another mouth to feed as times get tougher. Khamba is supposed to be a useful guard dog, but at this point he is just a nuisance to William.

Soon enough, William stops trying to get rid of Khamba and even enjoys his company. Khamba does his work protecting the chickens of the farm and loves hunting in the forest. William takes him to find birds in the dambo, a practice that William learned from his older cousins Geoffrey and Charity. Before getting a dog, William, Geoffrey and Charity trapped birds in tree sap and then pounced on them before they could escape. Meat is a luxury in William's family, and William's parents never make him share the delicious birds he catches.

William often looks to connect with other people, and forms a friendship with the dog Khamba in the absence of other boys in his family when his older cousins are unavailable. When hunting, William is allowed to keep everything for himself. His parents do not expect William to contribute the extra meat to the family, because that prize came from William's work alone.

On one hunting expedition, Charity rashly decides to get more sap for trapping birds. However, the best sticky sap is also poisonous if it gets in one's eyes. The wind blows the sap into Charity's eyes and William and Geoffrey know that they must quickly get Charity to a mother who is producing milk, as that is the only cure for the sap. Luckily, Agnes has just had a baby and is still breastfeeding. The boys lead Charity to William's house and Agnes is able to cure the sap-blindness in exchange for all the birds Charity catches on his next hunting trip.

This story helps flesh out the details of William's young life. Kamkwamba stresses how careful he and his friends had to be in the fields, as plants like the sap tree could be incredibly dangerous if not handled correctly. Aside from the considerations of food and shelter, Malawians also have to be aware of their surroundings and make sure that their lives are not at risk from an accident.

Hunting with Geoffrey and Charity taught William how to best trap birds and patiently wait for the moment to kill, skills that Khamba understands by instinct. On hunting trips, William takes a sack full of many tossed out items that might be useful, including two knives that William made out of discarded iron and plastic sheeting.

Farming families like William's must adapt to the best methods of survival in Malawi, weighing the costs and benefits of actions that animals like Khamba do on instinct. William also recycles objects that would be thrown away instead of wasting money on specific materials for traps.

On a hunting trip, William and Khamba head down to the blue gum trees by Geoffrey's house to take advantage of their shade. William strips two blue gum branches of their bark and stakes the sticks in the soil. He uses a piece of old bicycle tube to make a slingshot-type bit between the two gumtree poles and attaches a rope made out of gumtree bark. William stacks old bricks in such a way that the slingshot will slam birds into the bricks when William pulls the rope. Finally, William sprinkles corn husks into the center of the slingshot area to lure wild birds to his trap.

Kamkwamba's clear, logical description of the trap he builds already shows the marks of William's aptitude for engineering. William is adept at building functional things, such as a trap, out of whatever resources he has on hand. While it might not be the "perfect" trap that an engineer would build in a laboratory, it is the trap best suited towards William's particular environment and materials.

After setting his trap, William hides behind a tree as Khamba silently stays on alert. Half an hour later, four wild birds swoop in to eat the bait. William waits until he sees Khamba's ears prick up and a fifth, fat bird flies into the trap. William then pulls the rope and kills all five birds. William stuffs the birds into his pocket and heads to the mphala, the home for unmarried boys.

William is able to depend on Khamba's instincts to get a higher catch. In Malawi, even one bird more is a significant difference due to the scarcity of meat for many farmers. William must have incredible patience and time his trap just right to maximize his "profits" in the hunting field.

William's cousin Charity lives at the mphala, as does his friend Mizeck. The mphala is cluttered and full of the paraphernalia prized by Malawian boys, including posters of the famous Malawian soccer teams on the walls. It smells of smoke and unwashed boys, but William loves any chance he has to hang out there. Since he is younger than the mphala boys, William must buy his entry with treats such as tasty birds. William desperately wants to be included in the older boys' conversations, which are mostly centered on pretty girls.

The mphala reveals another facet of Malawian culture, where boys of a certain age are expected to disengage somewhat from their families, though they are not yet married and looking to start families of their own. Kamkwamba speaks of it in terms of an American fraternity house where boys can gather as they become men. Malawian culture also puts a lot of emphasis on respecting elders, explaining part of William's deferential treatment to Charity and Mizeck.

This particular hunt has been a large enough kill that William can take his riches to the mphala. Mizeck allows William in, but forces Khamba to stay outside. William yells at Khamba for show in front of the older boys, but makes sure that Khamba gets to eat the bird entrails. Charity and Mizeck roast the birds over a fire and set to their feast. William is happy he is allowed to stay while the boys are eating, but as soon as the birds are gone, Mizeck and Charity tell William to go home to his mother.

William may put on bravado in front of Charity and Mizeck, but his actions show that he truly does care for Khamba. This is another example of how William internalized Trywell's stories about always treating others with kindness. Still, William's youth means that he is not seen as a worthy companion in the mphala.

CHAPTER 4

William turns 13 in 2000 and starts to grow up. He, Gilbert, and Geoffrey spend less time hunting and more time playing bawo, a mancala game, in the trading center. William is good at this strategy game, an important consolation for his lack of skill at physical sports. William never allows Khamba to follow him to the trading center because the older men tease him for allowing a dog meant for hunting to come into the trading post. William must throw rocks at Khamba to make him stay home.

William's strengths obviously lie in mental pursuits, rather than the physical strength that he admires in his father and other Malawian men. In trying to find his place as a man in the village, William must balance the cultural emphasis on physical pursuits with his own desire to increase his intelligence and education. For now, William shows that he buys into the community's regulations on manly behavior by leaving Khamba at home.

As William matures, he stops caring so much about the soccer team, the MTL Nomads, that had sometimes taken over his life as a child. When William got so obsessed that he couldn't eat if the Nomads lost, he gave up following soccer for good. Instead, William and Geoffrey begin to talk about old radios and figuring out how to fix them.

While an obsession with soccer teams is another thing that Malawian boys and American boys might have in common, William is forced to put aside such non-essential activities much sooner than the average American boy might have to. Missing a meal for a soccer game is practically inexcusable given the frequent scarcity of meals.

As most Malawians do not have electricity and television, radios are the main source of connection to the outside world. Though there were only two radio stations, both controlled by the government, for much of William's childhood and adolescence, he still remembers the radio programs fondly.

Radios are a significant example of the way that technology can improve the lives of people in rural communities. William is intensely interested in radios for these world-opening capabilities, even if the radio channels in Malawi were not entirely propaganda-free.

William wanted to know how radios play music and produce sound as soon as he saw one. Through much trial and error, William and Geoffrey learn how the integrated circuit board, made up of wires and plastic, connects to little bean-like transistors that increase the sound volume. They investigate the internal antennae for the long AM waves and the external antennae for the short FM waves. After William and Geoffrey sacrifice many old radios to fully understanding how radios work, people bring the two boys broken radios to fix.

William again displays his natural ability to understand scientific and engineering issues. Though Kamkwamba uses all the correct terminology for the parts of the radio in the book, he notes that he was unaware of most of this vocabulary at the time when he was experimenting with radios. William's natural ability to work with radios is handy, but he still needs the added support of a quality education to fully understand the scientific principles at work in these machines.

Soon, Geoffrey and William run a radio-repair business out of Geoffrey's bedroom. To find out the source of the problem, the boys need a power source, but they don't earn enough to afford batteries. They look through the trash for used batteries that might still have some juice left, and make battery terminals out of empty Shake Shake beer cartons. The adults in the village are sometimes puzzled that William and Geoffrey are technically minded at such a young age, but encourage the boys to keep up their business and get good jobs.

Geoffrey and William become entrepreneurs from an early age, showing the same motivation and ingenuity that made Trywell successful as a trader. The villagers clearly see how these traits could translate to a life outside of the mundane work of farming. William and Geoffrey also show their resourcefulness by finding batteries in the trash to use for their projects, recycling things that would otherwise be useless so that they don't have to find ways to pay for new batteries.

William becomes very interested in finding out how things work, but is discouraged when no one in the village can tell him how trucks move, or how CD players play music. William decides he will become a scientist so that his job can be to figure out how these machines function, but he must first get good marks on his Leaving Certificate Examination at the Wimbe Primary School. Only students with the best grades are chosen to go to well-funded government secondary schools with full science classes.

William's natural interests require a better education than is usually given to people in this rural community of Malawi. After primary grades, which reach the equivalent of 8th grade in the American system, school is not mandatory for Malawians. William will have to sacrifice time, energy, and money to continue his education beyond that level and find answers to his questions.

Aside from studying, William spends the majority of his time working the farm. By far the most important crop is maize, the main ingredient of the nsima that is the basis of every meal. Nsima is made by combining corn flour and water and scooping the mixture into little cakes that can then be eaten plain or used as a utensil to eat any other food. A meal without nsima is not a meal at all for a Malawian.

The staple crop of nsima is often the only thing that keeps Malawians from starving when meat is scarce and other vegetables are not growing. Nearly 60% of the nutrition that keeps Malawians alive is found in this corn crop.

Farming maize for nsima takes intense work from the entire family. Women work in the home doing all the cooking, cleaning, and childcare while the men work in the fields. In July, William must clear the land from the previous harvest by burning the old corn stalks. From August to November, William digs new dirt rows into ridges in the ground that rotate the soil and make the soil soft enough for seeds to push through the hard Malawian ground.

The whole family must contribute to farming the food that keeps them alive. Most of the burden of farming falls on men, though Kamkwamba recognizes that the women work just as hard (or harder) at the tasks that constitute women's work in Malawi. The harvest seasons in Malawi are opposite that of American corn farmers, due to the location of Malawi below the equator and the added factor of the rainy and dry cycles of the year.

William gets up at 4 am to take advantage of the cooler early morning for the exhausting work of breaking the dry, hard ground. Agnes prepares corn porridge and sends him to the field with a warning not to cut his foot with the hoe – a common injury among rural Malawian children. The forest is still dark as William walks to the field, the only time William is still afraid of the Gule Wamkulu.

The constant possibility of injury is another thing that Malawians must factor into their survival plans. As the farm needs every available person to work, children with injured feet are sent back into the field, risking infection and a further threat to the child's life. William may be older now, but he still fears magic as seen in the figures of the Gule Wamkulu.

Rain comes to Malawi in December, and all farmers must scramble to get their fields planted as soon as possible. The seedlings sprout after a few days and farmers apply fertilizer after two weeks to help the corn stalks grow as much as possible. The harvest is then collected in May and lasts through September. This cycle means that food is plentiful from May to September, but farmers must store up enough grain to last from November to April. After buying fertilizer and seed in December, then splurging for meat on Christmas, most families must wait out the hungry season from January through April while the rain pours and nourishes the next harvest. Though the work is hard, and people struggle to prepare their fields with so little food, a good crop can produce enough to sustain the family all year.

The seasonal cycles in Malawi mean that farmers must work near constantly for a harvest that only comes once a year. If the harvest is not enough to sustain the whole family, then their family will suffer the following year. As many things might make a harvest smaller than usual, the calculations of how much seed the farmer can buy with the previous year's profits versus how much the farmer has to plant to ensure a full crop is often a tricky balance that leaves farmers short when January arrives. The hungry season can make or break a family if they do not retain enough food to survive and fuel the men who have to ready the fields for the crop next year.

In December of 2000, the rain came late in the month and then fell so strongly that the seeds were flooded out of the ground. At William's farm, the seedlings were able to stay rooted, but the rain washed away the fertilizer that would help them grow. Due to President Muluzi's new policies, fertilizer was too expensive for most families to buy again, and the promised aid from the government never arrived. After the floods, the rain disappeared altogether and a drought lasted until March. Some seedlings received enough water to grow to maturity, but crop yields were nowhere near their usual height and number.

Muluzi's administration is particularly unhelpful to William's family when the weather throws an extra obstacle into the farmers' never-ending battle to plant enough food. Though Muluzi may be a pro-business politician who tries to benefit the businessmen of the country, he does not seem to understand that the business of survival is far more important and has much less room for mistakes in the prices of materials necessary for a good crop.

As William and Trywell survey the sad state of their maize, William asks Trywell what will happen next year. Trywell simply sighs and says that everyone will have to deal with these consequences. The smallest villages feel the effects of the drought worst, with fewer people to work the fields and a smaller margin of error to keep away hunger. William's family is only able to fill five sacks with grain that year.

All of Malawi suffers from the effects that bad weather and poor governmental management have on the crop, but there is some variation in how hard certain communities are hit. Smaller villages often have no surplus even in a good year, and will suffer more when a poor harvest makes a specific year even tighter. The Kamkwambas' yield of only five bags is a mere fraction of the usual harvest and certainly not enough to sustain the family through the entire hunger season.

CHAPTER 5

William becomes interested in bicycle dynamos, small metal lamps that attach to bicycle wheels and light up when the wheel spins. William traces the wires from the lamp to the wheel, but cannot figure out how spinning the wheel makes the light come on. After noticing that the dynamo wires sparked when they touched metal, William and Geoffrey attach the dynamo wires to a radio where the battery would normally go. The radio does not play when William pedals, so Geoffrey suggests that they connect the dynamo wires to a socket on the radio marked AC. This time, pedaling the bike makes the radio play.

Through his experiment with bicycle dynamos, William learns the difference between DC (direct current) and AC (alternating current). Again, he has the natural ability and curiosity necessary to put these experiments into action, but he needs a more rigorous scientific education than he will get at the local primary school in order to truly understand the concepts that power these machines.

After this small taste of electricity, William wants to create his own in a form where he does not have to continuously pedal. 98% of Malawians do not have electricity, and have no other choice than to go to bed when it gets dark at 7 pm or else waste expensive kerosene oil trying to light their house with smoky kerosene lamps. The only way to get government electricity wired to a Malawian house is to submit a lengthy and expensive application to the Electricity Supply Corporation of Malawi (ESCOM) and hope that they eventually approve the application and find your house to run wires. Even then, government issued power cuts happen often at night, rendering the electricity lines useless.

The government again does not address what William sees as a basic need for rural Malawians who are trying to improve their quality of life beyond the simple farming lifestyles of their ancestors. Free or cheap electricity would be one way for Malawian farmers to build some room for surplus into the yearly equations of profits and expenses that usually come up short. Paying for kerosene is a strain on the Kamkwamba's family budget, but William needs that light to study at night after working in the field all day if he wants to avoid being a farmer in the future.

The other energy problem in Malawi comes from deforestation. Tobacco estates cut down many trees to make room for tobacco fields and more is used each year for cooking fires in villages without electricity. The lack of trees makes the Malawian soil easily washed into the river and the river must be dredged of silt and garbage so that the electricity turbines in the river can run again. This process is costly and leads to more power cuts as the ESCOM plant must be shut down to clean the river. This makes electricity even more expensive, and leads to more people cutting down trees and adding to the vicious cycle.

Kamkwamba suggests that the government does not recognize how deforestation leads to higher electricity cost, which in turns forces more people to contribute to deforestation. While cutting down trees might be good for business and necessary in villages where wood is the only fuel for cooking fires, Kamkwamba seeks to educate his fellow Malawians to the destructive long-term costs of this project. Free or cheap electricity would go a long way towards minimizing the effects of deforestation, allowing the Malawian land to recover and ultimately helping everyone.

Gilbert and his family can afford electricity, and William is amazed that Gilbert can just touch the wall and get light. William wants to have that ability in his own house, but his family does not have the money even for a small bicycle dynamo. William realizes he has to stop focusing on electricity and worry about graduating primary school first.

William has big dreams for improving his family's life, but he has to prioritize his formal education to even have a chance of utilizing the concepts that have so much potential. While having electric lights would be nice for the Kamkwamba family, education offers a way for William to better his family's situation in far more significant ways.

William stays up late each night with a kerosene lamp reviewing his old school books up to Year Eight to prepare for the primary school exit exam. This test is a three-day affair in September, with social studies and English on the first day, Chichewa and math on the second, and primary science on the third. William does his best and waits nervously for December when the grades will be posted. The students with the best grades are chosen to go to one of the three government funded boarding schools. William is jealous of his sister Annie already in secondary school and cannot wait until he can wear the trousers of a man in his own secondary school, though he knows that the school fees will be hard to arrange no matter how good his grades are.

While William may have an incredible aptitude for science, the future of his schooling will depend on his grades for all of the subjects taught in primary school. The Malawian government favors certain schools over others, prioritizing funds to the schools that accept students with the best grades at the expense of all other schools. Even then, secondary school is only an option for students who have the money for school fees. In his life beyond this book, Kamkwamba seeks to provide better education for all Malawian students in order to close this unfair gap.

As William grows, he must help his father more in the fields during school holidays. Tobacco requires even more work than maize, and William has to water each tobacco seedling individually to protect against the harsh sun. One day in late September, William finishes this work and goes with Gilbert to the trading center, where a large commotion of women has gathered. Gilbert explains that these women have come from smaller villages looking for ganyu, or day work, to feed their families during the hunger season. Usually these women can go to the big estates and ask for ganyu, but this year the estates have nothing extra to give out as payment. Chief Wimbe must find a way to help these women.

Tobacco is the Kamkwamba family's main cash crop, but the effort it takes to maintain the seedlings sometimes overcomes the benefit that selling the tobacco gives. However, the extra work of harvesting tobacco puts the Kamkwamba family in a far better position than those who are forced to look for ganyu just to feed their families. Though the community can usually pull together to make sure that everyone can work for food, those that depend on ganyu are at risk of starvation during famine years.

The maize crops in the outer villages were the first to suffer in the strange flood and drought of the past year. Soon, everyone is running out of food only four months after the harvest. All the places that usually have a surplus to sell during the hunger season have nothing this year. Trywell advises William not worry, as the government keeps a surplus for these times and will distribute it through the ADMARC (Agriculture Development Marketing Corporation) that sells maize at a discounted price.

While there are stopgaps in place for the hunger season of a normal year, the drought upsets that balance. Trywell has faith that the government will step in and provide aid to the people who are suffering. Yet Kamkwamba's tone throughout this portion suggests that the government will not be as helpful as Trywell hopes, and that the loss of crops is far more widespread than usual.

William trusts his father, but overhears a troubling conversation one day between Trywell and Agnes. At a rally called by the Malawi Congress Party that had supported President Banda, Trywell found out that President Muluzi had sold all the Malawian surplus grain to other countries for profit. The floods and drought had given Malawi a huge food deficit, but organizations like the International Monetary Fund and World Bank had pressured Muluzi to sell off the expensive grain surplus to settle previous debts. No one is entirely sure where the grain has gone, but it is clear that this year will be much harder than anyone expects.

In attempting to turn Malawi into a financially successful country, Muluzi ignores the most important segment of the Malawian population. Without the foundation of the farmers, Malawi cannot grow into a successful, sustainable future. Planning for short term gains does not work when the margins of survival year by year are already so slim. Again, Kamkwamba seems more sympathetic to Banda's administration, despite its faults, than he is to Muluzi's governing choices.

The price of maize starts rising in October and people begin to search for other food such as mangos and pumpkin leaves. William's neighbor gives out unripe mangos for ganyu. A few days later, William notices traders selling gaga, the clear husks of corn, that is normally never eaten by people but used to make corn liquor, feed chickens, or set traps for birds. Now that maize is 300 kwacha a pail, people are turning to gaga as a cheaper alternative, though gaga itself is now ten times its normal price.

In times of trouble, Malawians turn to anything they can to try and survive through the hunger season. Using gaga as a replacement for corn is troubling to William, as he is used to only seeing this product as food for animals. He is beginning to realize that the harsh demands of survival sometimes come at the cost of one's normal dignity.

Agnes has been cooking meals as usual, and William has been eating as much as he wants with no thought for the poor harvest. Now scared by the sight of people buying gaga to eat, William checks his family's storeroom and sees that they only have two bags of grain left – enough for 3 meals a day for only 24 days, when there are 210 days until the next harvest. William and his father haven't even started planting yet, and there is no guarantee that this harvest will be better than last year's.

So far, William had been somewhat sheltered from the realities of a famine. Now, however, he sees the reality of what his family is facing. Though survival entails many different things, Kamkwamba presents it in the form of a bare math equation, where the amount of food they have is nowhere near enough for the number of days left in the hunger season. They must do something to change those numbers or risk starvation.

Agnes begins milling gaga into their maize flour and Trywell sells off their goats before the price drops too low. William is sad to see their livestock go, as it is a sign of wealth to have animals, but he knows that it is more important that they have food. In November, William goes to work in the fields at 4 in the morning without his usual meal of corn porridge, as his mother wants to start cutting back and stretch what food they have.

The Kamkwambas proactively do many things to change the bleak difference between how much food they have and how much food they need, but the extra food comes at the cost of William's pride in belonging to a family that owns livestock, and his comfort in having a full stomach before he has to go work in the field. While the bare equations of survival might balance out now, the true cost of the famine is felt in other ways.

William complains to Geoffrey about the missed breakfast, but Geoffrey says he stopped getting breakfast weeks ago. The two boys set to work, at first able to ignore their hunger in the cool dawn hours, but by 7 o'clock William is tired and hungry. Trywell scolds him for slacking off on his ridges, and William tries to reapply himself despite the lack of food. Geoffrey silently works next to William, not stopping to joke as usual. William notices that Geoffrey has been distant lately, and remembers that Geoffrey was recently diagnosed with anemia at the village clinic. Even worse, William knows that Geoffrey's family has no money for school fees.

Kamkwamba is clear to note that his family was actually fairly lucky during the famine, as no matter how bad William's life becomes there are many others who had it worse. Geoffrey, though a part of the Kamkwambas' extended family and therefore somewhat their responsibility, is forced to fend for himself during the famine with the added difficulty of anemia due to previous malnutrition. Yet William is more distraught at the thought that Geoffrey will not get to go to school, as William prizes education above physical comfort.

Khamba too has been slowing down during this hunger season, suffering from old age as well as a lack of food. William tries to keep feeding the dog table scraps, but there are not as many leftovers as before. As maize gets even scarcer, more strangers come to William's village looking for ganyu in exchange for roots and leaves that no Malawian would normally consider food. Maize is also sold in small portions called walkman that are only enough for one person, a common practice in the city but odd in the countryside where maize is usually so plentiful. Even the large estates have no way to pay these workers with food, though the rich of Malawi are dining well on the chickens and livestock that the farmers are forced to sell. Women and children gather around Chief Wimbe's (and Gilbert's) house, hoping for a handout.

As the entire village focuses on the bare minimum for human survival, there is even less possibility that animals such as dogs will be considered. As conditions get worse, people begin planning just for the day with ganyu and walkman, though those practices make it harder for people to ensure that they will have anything to eat in the future. Still, the hunger of some means feasting for others, as some rich Malawians take advantage of rural farmers' desperation for money to buy extra meat at dirt-cheap prices. Kamkwamba has little respect for those that look out only for themselves during the famine, as well as pitying those who are forced to turn to Chief Wimbe for help instead of being able to support themselves.

President Muluzi travels around Malawi, giving small handouts to assert his power and holding rallies that feed the poor in exchange for their vote next election. William had seen Muluzi at a rally in 1999, when Muluzi promised to repair and refurbish the Wimbe Primary School. Government men had cut down multiple gum trees in preparation for this school, but nothing ever came of this promise. Now, in the midst of the maize crisis, the government says nothing on the radio or elsewhere about this horrible food shortage.

Muluzi has a clear history of not following through with the promises he makes to improve Malawian quality of life. Though refusing to acknowledge the famine, Muluzi takes advantage of these harsh circumstances to consolidate his own position in preparation for the next election. Kamkwamba sees Muluzi as primarily concerned about his own wealth and power rather than the welfare of the Malawian population.

The people of William's village ask Chief Wimbe to speak on their behalf at the next rally for Muluzi, an event usually full of effusive praise for Muluzi's work as chairman of the Southern African Development Community and his efforts to broker piece between Congo and Rwanda. Chief Wimbe asks Muluzi to stop funding wells and toilets and simply buy more grain for Malawian citizens. The villagers all whoop and applaud, though the President's paid audience boos and hisses.

Muluzi's ideas for improving Malawian villages are not necessarily bad, as wells and toilets are potentially helpful projects. Yet Muluzi fails to see what the communities need most and, even worse, ignores the voices within those communities asking for change. In light of those choices, Muluzi's work in other African countries seems less about the actual good he is doing and more about puffing up his own reputation on the international stage.

Government officials approach the chief after his speech, and beat him for criticizing the president. For the next few weeks, Chief Wimbe hardly moves from his couch, scared to even go to the doctor about his injuries for fear of Muluzi's thugs. William is more scared than ever, wondering how a government that dares to beat a chief would treat a poor citizen.

More than just ignoring the needs of Malawian villages, Muluzi actively harms the chief who is working for the average citizen's best interest. The government is rarely helpful in William's experience, providing ample reasons to go around government channels in his own efforts to improve conditions for his family and his community.

CHAPTER 6

December comes and William's family manages to plant a small crop of maize and a half acre of tobacco, though many farmers are so busy looking for ganyu that they ignore their own fields. Migrant workers take longer hours for even less food at the end of the day. Gilbert stays at his doorway for long hours giving out handouts to the crowds of people asking for food. William's family mills their last sack of grain and Trywell announces that they will only eat once each day at supper.

The pressures of a famine year stretch beyond one bad harvest, as looking for food in the short term prevents many farmers from planning ahead to the crops that they will need in the future. As each day becomes more difficult, Chief Wimbe (through Gilbert) must pick up the slack that the lack of government aid has left. This makes conditions worse all around as the entire district runs out of all sources of food.

The next evening, Trywell gathers the whole family for their one meal. Usually mothers and fathers do not dine with their children of the opposite gender in Malawi, to keep the relationships as polite and respectful as possible. Yet on this night, all of the Kamkwambas sit around one table. William's sister Doris brings the hand washing basin to each person and William's mother brings just one large bowl to the table. It contains only one blob of nsima and some mustard greens, all of which is eaten in a matter of minutes.

Kamkwamba describes another facet of Malawian culture in the separation and respect between genders and ages. It is another thing that must be sacrificed to the demands of survival, yet also serves to bring the Kamkwamba family closer together in this time of trouble. They all must share and rely on each other in order to survive this time of famine.

Matters get even worse for the Kamkwamba family when Agnes gives birth to another daughter. Children in Malawi are supposed to respect their parents by not asking them questions, and it is always taboo to speak of a woman's pregnancy, so that the mother-to-be will not become the target of witchcraft. William had noticed his mother getting rounder in the belly, but said nothing. When the daughter is born, Trywell and Agnes tell the children that the new baby had been bought at the clinic.

The arrival of another child should be a time of celebration, yet during the famine it is simply another obstacle to coming out even in terms of the food available and the food necessary for the family. Magic is again seen as an evil influence that might harm pregnant women or newborn children, rather than a benefit to the Kamkwambas' lives.

Trywell and Agnes are obviously worried about their family's situation, and are too preoccupied to give the new baby a name for days. The rates of child mortality are high in some Malawian villages, so some families name their children to reflect the poor circumstances that they are born into. Even William's uncle Musaiwale (meaning "don't forget") was originally named Mdzimange (meaning "suicide"). Yet William's parents seemingly stay hopeful, finally naming the new baby Tiyamike, meaning "Thank God."

Trywell and Agnes have incredible perseverance in the face of adversity. Kamkwamba retains this hopeful demeanor in the book, focusing on the positive when he can and describing his hardships with an optimistic look toward a better future. Kamkwamba believes that this optimism is more beneficial in the long run.

When the Kamkwamba family has half a pail of flour left, Trywell announces that they are going to start a new business. Agnes makes small, sweet corn cakes to sell at the market in the hopes that they will make enough profit each day to eat themselves. William stays in the kitchen, smelling the wonderful aroma of sweetcakes, though he doesn't get to lick the remaining batter from the pot as he did in better days. Trywell sets up a stall and they sell the hot cakes for 3 kwacha each – often selling out in only 20 minutes. They take their earnings each day to a friendly trader named Mr. Mangochi, and buy enough flour to eat dinner and make hot cakes the next day.

Trywell again reinvents his life for the good of the family, turning to a new food stand business when farming is no longer enough to sustain them. Despite the difficulties and hard work involved in setting up this new business, Trywell and Agnes are able to adapt to the new circumstances of life and use the materials at hand to contribute to the ultimate wellbeing of the family. This in turn benefits the community as well, as the Kamkwambas' hot cakes are a source of food for those who cannot afford their own flour.

One Sunday as Agnes takes her sweet cakes to the market, she notices two young men talking to Annie in the yard. Annie is not supposed to talk to boys without permission, but she explains that these boys are teachers from the private school in Mtunthama and just need directions to a friend's house down the lane. Agnes agrees to let Annie escort them. When Agnes gets home from the market that afternoon, Annie has still not returned. Agnes finds a note in Annie's room saying that she has married one of the teachers and that she is safe.

During famine time, the regular rules of polite behavior are somewhat suspended. While Annie might never have spoken to boys on her own in the normal regulations of Malawian behavior, Annie's own future is threatened by the famine. She must find a way for herself to survive without depending on her family to arrange a marriage or continue to pay her school fees when even buying food is becoming too expensive.

Trywell returns home and flies into a rage when he hears that Annie has eloped. Trywell and Agnes had been very proud of Annie and her studies in high school, and had scraped together her school fees despite the famine this year. Leaving with the strange man means that Annie can never live at home again. William later finds out that the teacher's name is Mike, and that Annie and Mike met months before, fell in love, and arranged for Annie to run away.

Kamkwamba inherited his reverence for education from his father, as Trywell put his daughter's school fees above the possibility of having a little extra money to buy food during the famine. Still, the conservative values of rural Malawian culture mean that Annie cannot return home after staining her good reputation by having a relationship with a man.

Normally, Malawian girls ask the boy they like to visit with their family over several weekends before the boy will propose marriage. The girl then talks to her mother about the match, the mother speaks to the father, and the father speaks to his wife's brother. This uncle will then meet with an uncle of the groom and arrange the dowry price for the family. The groom's family also pays for all the wedding ceremony and reception costs, making marriage a very costly prospect for young Malawian men. Mike and Annie did none of this, only sending a letter three weeks after they ran away letting the Kamkwambas know where to collect a small dowry of a few hundred kwacha. Trywell becomes depressed after Annie leaves, though William is selfishly glad that they now have one less mouth to feed.

The normal process of a Malawian marriage proposal is intensely involved with the potential bride and groom's families, but these demands of etiquette fall apart when the famine takes precedence over everything in the Kamkwambas' daily lives. However, the cost of a marriage is also prohibitively expensive for many rural men in a good year. Annie's marriage is a sad blow to the Kamkwamba family, but it is also a reminder that her departure might make it easier for the other Kamkwamba siblings to survive.

A week later, Agnes sends William to the ADMARC one town away to see if rumors of maize at a reduced price are true. William heads off at 5 am and gets to the ADMARC by 6:15, but the line is already all the way down the road. William notices how tired and weak from hunger everyone looks. Some in the crowd obviously haven't eaten in weeks and the line simply steps over those who collapse in the heat and exhaustion as babies cry.

With the maize scarcity, many villagers cannot afford to ignore even the hint of food. Kamkwamba details the horrific conditions of famine, explaining these scenes of starvation and despair with full emotion, in contrast to the educational descriptions of farming or hunting earlier in the book. At this point, any food at all is a matter of life or death.

As the morning continues, men sell their place in line for outrageous prices, preying on those who look the hungriest. William is glad he has a hot cake from his mother to keep him going, but is very hungry himself. As morning turns to afternoon, people begin pushing toward the door in a rush to try to ensure that they get some of the limited supply of grain. William is shoved towards the door and begins to surf the crowd rather than fight the mobbing. He finally makes it into the ADMARC, shocked at the quiet and fresh air after the press of the people outside. Right after William gets in, the guards at the door prevent anyone else from entering the ADMARC.

Even though everyone is facing the same hunger, Kamkwamba recognizes that people have to do what they can to make sure that they and their loved ones survive. He rejects the malicious people who prey on others' hunger, but does not condemn those who are simply trying to get by.

William has four hundred kwacha in his pocket, enough to buy 25 kilos of maize. However, the officials at the ADMARC tell him that that price will now only buy him 20 kilos. William tries to argue, but finally accepts, because any maize is better than no maize. The workers filling the buckets cheat William out of even more maize by under-filling his pail, but William has no other option than to rush out of the ADMARC and protect what maize he can from the throng of people attempting to buy maize – or, even worse, kill William and steal his maize. William furiously pedals home with the maize, finding that it is only 15 kilos of grain. That will at least feed his family for another week.

The government again shows that they will not act in the best interest of the people by cheating William of about ten kilos of maize. At this point, the Kamkwambas are simply concerned with making it through the next week, so they are forced to accept whatever the government offers. Surviving within such strict limits makes it hard for William to think about anything other than his next meal, stunting his dreams to improve his family's condition.

Soon, people in the village begin selling their possessions for food. William watches the line of people lugging all their worldly belongings to the market, as Khamba, thinner than ever, sits on a blanket beside him. William eventually follows the line of people to the market, finding that the usual commerce of the village has been replaced with the business of survival. Most people have no money to buy anything that the starving villagers are trying to sell.

Kamkwamba keeps Khamba in the narration as a sign of the many luxuries that he had to give up during this time. When people are at the point of selling their possessions, there is nothing to spare for a dog. Rather than focusing on making their lives better or making a profit for their families, the trading center is only for the buying and selling of food – the business of surviving one more day.

Many in the village try to protest the high prices of imported maize brought in by traders, but it does no good. William even sees a man trying to sell his two young daughters in his desperation. Thieves are more prevalent than ever, stealing maize from women returning from the market. The maize mill stands almost empty, the floor picked clean of any scrap of maize flour or corn chaff that might offer food. By mid-December, no one has any more maize to mill.

Though recognizing that people do what they have to for survival, Kamkwamba has little respect for thieves or price-gougers in the midst of the famine. Again, his philosophy seems to prioritize actions that do not actively harm others even if he is not in the position to help others. As undignified as it might have been to scrape maize remnants off the floor, it is even worse when there are no maize scraps at all.

Christmas was usually William's favorite day of the year, with the fun of the Christmas pageant at church and the delicious food of the rainy season, such as flying ants. Christmas morning brought real brown bread with margarine and sweet, milky tea. But the real treat of Christmas is meat for Christmas dinner, even for Malawians who cannot afford meat at any other time of the year. Yet on Christmas 2001, nothing goes right. All the Kamkwamba's chickens die from a disease that renders them inedible, and the church cancels the pageant.

In a usual year, Christmas offers a bright spot of good food and rest before the start of the true hunger season. Though the material things that mark Christmas in Malawi may be different, Kamkwamba describes the fellowship and warmth between friends and family as very similar to an American Christmas. With the famine, even the spirit of Christmas is ruined as no one has the energy to celebrate or do anything beyond survive through the day.

After an unsatisfactory Christmas lunch of a blob of nsima, William goes to visit Geoffrey. Geoffrey now looks for ganyu each day instead of working on the farm, and is continuing to lose weight from overwork and anemia. William has no way to help Geoffrey, too busy with his own fields. William then goes to see Gilbert, finding Gilbert's house surrounded by people looking for a Christmas handout from Chief Wimbe. Even Gilbert's family has no chicken for Christmas, but they at least have nsima and beans.

William's relationships with his friends also suffer during the time of famine because William has no resources to ease his friend's troubles. Geoffrey is on the edge of the survival equation, about to fall off. While Gilbert may be doing better than the majority of the village, he has the added pressure of taking care of others because of his status as part of the chief's family. This time of starving exacts a price from every part of William's life.

With Geoffrey and Gilbert busy with their own troubles on Christmas, William goes to see Charity at the mphala. William and Charity brainstorm ways to get a good Christmas meal, eventually settling on seeing if a local butcher will give them the skin of a goat that is normally thrown away. At the butcher's stand, Charity gets a skin by pretending that he is making a drum.

William and Charity are resourceful even in this depressed and starving state, showing the true resilience of their spirits. The scheme to get a goat skin distracts the boys from their hunger more than actually satisfying them physically.

William and Charity take the goat skin back to the mphala and start to burn the hair off. William is so hungry that even that smells good. Once the skin is scraped completely clean, William and Charity boil it in a pot of water with salt and soda to make the skin tenderize faster. After three hours, Charity tests a chunk of skin. It is sticky and tough, but the boys start to feast on it. William throws some goat skin chunks to Khamba, and is surprised to see Khamba revitalized somewhat by the food. When their jaws are sore from chewing the leathery skin, William and Charity save the rest of the skin chunks to eat tomorrow. William decides that this was enough of a celebration for this Christmas.

As with the birds he used to hunt, William has gotten this goat skin on his own and is under no obligation to share it with his family once the skin has been taken to the mphala. Just giving some of the skin to Khamba is a sign of kindness, though it is also an acknowledgement that this food is really only fit for dogs anyway. During the famine, actions that would never otherwise be acceptable during normal life in Malawi are instead judged on a different scale of survival.

CHAPTER 7

The week after Christmas, William finds out that the scores of the Standard Eight exams are ready. He runs to Wimbe Primary school, dreaming of the wonderful school he will go to and learn to be a scientist. William finds the list and scans the list of students going to the boarding school in Kasungu. Yet his name is not there. It turns out that William's grades were only good enough to get him into Kachokolo, a community school often ignored by the government. William is disappointed, but tries to stay positive by thinking that he can study for two years at Kachokolo and then take his Junior Certificate Exam and transfer to a better school.

Even in the midst of a famine, William is able to be excited about school and hope for his future. The pursuit of education is a central part of William's character, as well as his seemingly boundless optimism in tough circumstances. Furthermore, William does not make excuses for his somewhat poor grades, though conditions at Wimbe primary school were not conducive to productive study. He accepts this small step in his plan and already starts to look ahead to gaining more knowledge in the future.

January brings daily rains that nourish the newly planted maize seedlings. The forests also blossom and the flies and mosquitos come out in full force. These insects and the damp rain make life even more unpleasant for the people who are desperately searching for work and food. Maize and gaga are now so scarce that some dishonest traders mix sawdust in with tiny amounts of corn flour to trick hungry people.

Though the rain is unpleasant in the moment, it is a blessing for the future of the harvest. William's village needs this rain to get a good crop and recover from the famine. While still in the midst of the famine, people continue to have a selfish mentality that hurts other people. Kamkwamba has no patience for these actions.

Agnes still bakes hot cakes every day, bringing one hundred fresh corn cakes to the market each day for farmers who have no other option for food. Traders like Mister Mangochi who charge high prices for imported maize are the subject of much abuse, but the traders have to charge high prices to make their own profit in such a difficult market. Often in all the chaos of trading and yelling, Agnes can't protect herself from customers who steal extra cakes or eat the cakes quickly and do not pay.

While the community has to come together to help everyone survive the famine, there are also times when people must be selfish to ensure their personal survival. Mister Mangochi has to charge high prices to keep his own business afloat, and Agnes has to sell her cakes instead of allowing people to take them for free. Kamkwamba explores the tricky balance between fighting for one's own survival in the midst of a community of people all trying to do the same thing.

As the price of maize continues to rise, Agnes can make fewer hot cakes and the Kamkwambas' profits shrink. The blob of nsima at dinner gets even smaller, and William's seven-year-old sister Rose starts to take more than her fair share of the food. Doris complains about Rose's improper behavior, but Agnes and Trywell say nothing. Rose and Mayless, the youngest sisters, show the effect of low rations more than the other children, due to their already thin frames. Still, Doris becomes paranoid that she will no longer get any food, and punches Rose the next time she takes too much nsima. Agnes pulls them apart, but says nothing to scold Rose or Doris.

Just as the famine hit harder in villages who have less to spare, it is worse for people who had less to lose in the first place. While Rose fights for what she needs to survive, Doris must also do the same – though the specific amount of food might be different for the two girls. Trywell and Agnes do not force the girls to share or collaborate, simply interrupting when the girls start to actually harm one another directly. The siblings have to learn for themselves how to balance survival individually and in a group.

The government continues to ignore the food crisis, and there is no relief maize sent to the ADMARC. People begin to be paranoid that the government is working to hurt people in other ways beyond selling off the maize. Many people take their money out of the bank for fear that the government will steal that as well. Trywell withdraws the Kamkwambas' entire savings and buys food for one week.

Government distrust has been brewing over the past years, but the famine brings these issues to the forefront. As the citizens start to see the ways that the government acts against them, other institutions such as banks also become untrustworthy. The rate of inflation is now so high that the entire life savings of a family can only buy a week of food, but survival demands that the Kamkwambas pay that price.

Despite everything, William looks forward to school in January. He thinks that being hungry at Kachokolo will be easier than being hungry at home. The only problem is that his family cannot afford the proper white shirt for the uniform. William gets a white shirt from the thrift store but he can't get it clean without soap. Still, William meets Gilbert on the first day of class, happy to be back at school.

When William is mentally stimulated, he is better able to handle the physical pain of hunger. He does all he can to find the proper materials and uniform he needs to fit in well at school, reusing an old thrift store shirt in order to ensure that he will get the education he desires.

William and Gilbert walk forty minutes to Kachokolo and gather in the yard with the other new students. The headmaster W.M. Phiri welcomes them and shares the rules of wearing a proper uniform and arriving on time. As the students file into class, Headmaster Phiri stops William and asks why William is wearing flip-flops instead of the proper uniform shoes. Unwilling to tell the headmaster that his family cannot afford shoes, William lies that he can't wear his good shoes to school because he has to cross two streams on the journey and his mother does not want him to get mud on his good shoes.

Even knowing that all of Malawi is facing this famine, William is unwilling to admit that the famine has destroyed the financial state of his family. He does whatever he can to keep his pride intact even if the business of survival demands everything else. Luckily, William's quick-witted answer is sufficient for the headmaster, showing another instance where William's intelligence was his best asset.

Aside from uniform shoes, William's family also cannot afford school books. Gilbert says that William can look on with him. Conditions at Kachokolo are not much better than the sad state of the Wimbe primary school, with no money for new desks, repairs to the building, or new supplies for the classes. Still, William enjoys learning about ancient civilizations and finding Malawi on a map.

Though the school itself is neglected by the government, William's experiences at Kachokolo support the importance of community involvement in education. Gilbert supports William at school by lending him books, showing how important it is for William – and other rural Malawian students – to have friends who can help them in times of need.

Unfortunately, hunger is actually harder for William to deal with at school than in the field. Most of the students have trouble paying attention and talk at recess focuses only on food and hunger. Even worse, Headmaster Phiri announces in February that the grace period for unpaid school fees is over. William knows his family does not have the money. He finds his father in the field that night and asks about money for school. Trywell shakes his head and promises that next year will be better.

It is hard for William to focus on his education, through he prioritizes learning above nearly everything else, when his basic needs are not met. For many students in emerging countries, schooling has to take a backseat to survival in times of hardship. Trywell even has to admit that he does not have William's school fees, though his children's education is usually Trywell's top priority.

William sadly tells Gilbert the next morning that he has to drop out. With Gilbert at school, William goes to find Geoffrey, whom he hasn't seen in weeks. William is shocked at how skinny and ill Geoffrey has become, but Geoffrey ignores his own troubles to tell William to trust in God through his school difficulties. In fact, 50 of the 70 students at Kachokolo had to drop as well. William is reminded that all of Malawi is suffering together.

Geoffrey's advice helps William realize that his personal difficulties are mirrored all over Malawi. Everyone is dealing with the same hunger, and dwelling on this misfortune will not make it better. It also highlights the familial support that William receives during the famine.

By late January, even the gaga of corn husks is gone and famine truly arrives in Malawi. William is reminded of the plagues of Egypt as he watches starvation make skeletons and zombies out of people. Even worse is kwashiorkor, a condition where a lack of proteins in the blood causes a starving person's body to swell. Starving people will eat literally any root or seed they find, even if it puts them at risk of poison or disease.

From the things Kamkwamba has described already, it's almost unthinkable that things can get worse. Yet they do, until William can only compare what he is seeing to the dark times of the Egyptian plagues from the Bible story of Moses. Even worse, the balance of survival means that the uncertain death from poisonous or unclean food is preferable to the certain death of starvation.

Men continue to pass through Wimbe looking for any work or food. Men stop at William's house, thinking that their iron roof means they have money and food. One man even walks into the Kamkwambas' dinner and eats half their nsima before walking away. In the market, people alternately stare at the traders with their small portions of maize selling for the price of gold, or scream and plead with God to end their suffering. Everyone has stories of starving people who died as they were being given food.

The balance of surviving week by week is now down to day by day. There are few reliable sources of data for the number of people who died during the famine, as the Malawian government did not keep accurate records of this time, but the number is certainly in the thousands. Kamkwamba's stories humanize and personalize the true cost of this food crisis.

Amid all the starvation and suffering, President Muluzi goes to London. When a reporter asks Muluzi what he plans to do about the famine, Muluzi responds that diseases are a problem in Malawi but that no one has died of hunger. Hearing this interview on the radio, Trywell shakes his head at the President's willful blindness. William knows that it is up to them to make sure that they survive.

While Trywell had initially counseled William to trust in the government to help them, the president elected by the people seems to care very little about the people of Malawi. Muluzi denies the food crisis, making relief from government or foreign aid agencies even less likely.

CHAPTER 8

Soon after Muluzi denies the famine on the radio, William notices that Khamba truly is starving to death. After the treat of the goat skin at Christmas, William has not been able to feed Khamba because there is never enough to share with a dog. William wakes up the next morning aching with hunger and decides to go hunting to try and fill the clawing void in his stomach. Khamba, electrified by the word "hunt," manages to go with William.

Khamba, a secret pleasure of William's childhood, is one of the things to suffer most during the famine as William begins to see how harsh the world can be. Here, William returns to hunting, one of his childhood pastimes, as the famine continues to worsen, possibly hoping to hold on to the better times for a little while longer.

William takes ash to use as bait for his trap, then heads out into the rain. At the trap site, William sets up his snare and begins to daydream about how delicious the meat will taste, and how it might fortify Khamba to live one more month until the harvest is ready. Yet the birds realize it is only ash and hop away before the trap catches anything.

Though William is incredibly resourceful, substituting ash for bait and building a trap with the materials he can find, he is unable to trap any birds. No matter how smart William is, there are some aspects of life, such as picky birds and famine, that he cannot overcome through ingenuity alone.

That night, Khamba falls deeply asleep, waking only when William brings him a small pinch of nsima. Two days later, Khamba vomits up what food William can give him and William knows the end is near. Charity and Mizeck stop by William's house and Mizeck becomes enraged by the sight of Khamba's sickly frame. Charity and Mizeck force William to "be a man," and agree to put Khamba out of his misery.

Another cruel aspect of starvation is that the body is eventually unable to process food even when some is available. Like the swelling of kwashiorkor, this harsh reality is another reminder for William that survival in Malawi is a vicious discipline. Tragically, William also has to "become a man" by taking on the distasteful responsibility of ending Khamba's life so he is no longer in pain.

The next day, Charity and William take Khamba out to the forest. The day is beautiful, for once, but William can only feel the hot tears beginning in his throat. They stop at the blue gum grove, and Charity ties Khamba to a tree. William gathers the courage to take one last look at Khamba, shattered by the sight of his pitiful frame as Khamba understands he is being left for good. Charity rationalizes that Khamba was old, but William knows he has done a terrible thing.

Another cost of the famine is the loss of the relationship between William and Khamba. While children all over the world must deal with the loss of a pet for one reason or another, William has the added burden of knowing that he was unable to provide for his dog and indirectly caused his dog's death by giving up on Khamba.

Uncle Socrates comes to visit Trywell the next day, and asks William where Khamba is. William pretends he doesn't know, and Socrates guesses that wild dogs got Khamba. Charity arrives the next morning and convinces William to go check if Khamba is dead. Carrying hoes to make people think they are going to do field work, the boys approach the blue gum grove. Khamba's body is huddled under the tree, with insects crawling in his mouth, and no sign that the dog struggled at all against the rope. William somehow finds the energy to dig a grave and the boys bury Khamba. Until William began writing this memoir, he says, Khamba's death had remained a secret.

While Kamkwamba clearly feels intensely guilty about Khamba's fate, the reactions of Socrates and Charity suggest that William was not truly at fault for Khamba's death. The famine, combined with Khamba's age, mostly likely would have caused an even more painful death for Khamba had William not chosen to leave him at the tree. Though Kamkwamba does not explicitly state a desire to memorialize Khamba, including Khamba's life and death in this book clearly does so, and helps repurpose the story to a greater good as Kamkwamba hopes to support and inspire others who grow up in poverty.

Two weeks after Khamba's death, a cholera outbreak reaches Wimbe from southern Malawi. Cholera attacks a person's stomach, causing violent diarrhea that leaves the body so weak that death comes within six hours of the first symptoms. The disease is a constant threat in Malawi in the rainy season when floods wash pollution from poorly built latrines into drinking sources. During the famine, migrant workers would be struck with cholera on the road, contaminating even more ground when the rains came.

The famine continues to harm Malawians in indirect ways, other than starvation alone. The true cost from this lack of food includes hundreds of people who died from diseases or the generations of malnourished children who survived but were scarred by this experience. Cholera is an especially taxing disease, taking a physical toll on its victims and an emotional toll on their loved ones that only worsens everyone's ability to survive.

The clinic gives out chlorine tablets as a preventative measure for cholera, and the Kamkwambas closely monitor the cover on their latrine. Still, William can't escape the sight of people stricken with cholera walking to the clinic and the chlorine-burials at the Catholic church in the village. People are dying every day from hunger or cholera.

Though writing from the perspective of an adult, William is still just a child when he witnesses the devastation of the famine. As with losing Khamba, seeing his community fall apart contributes to William's loss of innocence as he fights just to survive.

After months of eating solely pumpkin leaves, Geoffrey's anemia has also worsened, leaving his body swollen with fluids and too weak to walk. Geoffrey is even struck blind in bright light. Agnes takes half of their family's flour for the day and takes it to Geoffrey's mother because she cannot allow any of the Kamkwamba family to suffer. Two days later, Agnes does the same for Grandpa.

Though splitting their food may make things even harder for William's family to make it through the famine, Agnes follows Trywell's philosophy of always helping others. She also stays faithful to the traditional Malawian values of family and community support.

All of the Kamkwambas have lost perilous amounts of weight. Trwyell begins weighing himself obsessively, but Agnes refuses to weigh herself and forbids the children from approaching the scale. Agnes tells her daughters to trick their brains away from hunger by thinking of good things. Trywell begins excusing himself from meals and tells William in secret that "hunger only kills men." William understands, having seen men take on the bulk of the pressure of foraging food for an entire family and burning precious energy in the fields.

The business of survival takes on another numerical measure as Trywell tracks his weight. As with the amount of grain and number of meals, there is a slim margin of error between a weight that lets the Kamkwamba family stay alive and a weight that means certain death. The traditional gender roles of Malawian society, putting most of the burden of providing for a family on men, makes this equation even trickier for fathers and those who have other mouths to feed.

A week later, Mayless contracts malaria and is unable to eat. She can't go to the clinic because the building is quarantined with cholera. The Kamkwambas can do nothing but pray, until Mayless finally recovers. She gets better, but is thinner than a ghost.

Health care is another huge problem in Malawi, as modern clinics are often understaffed and underfunded. With the Wimbe clinic overwhelmed by cholera, the Kamkwambas turn to spiritual means of healing for their daughter instead of science-based medicine.

In Mid-February, William and Geoffrey help Trywell prune the tobacco crop. The boys wish they could eat the tobacco leaves as they hang the bundles to dry. Before the tobacco is even ready, Trywell begins making deals for tobacco so that the Kamkwambas will have food that night. As the weeks go by, the rates of tobacco for maize get steeper and steeper, but Trywell somehow manages to keep the numbers all straight in his head.

Trywell begins projecting the farm's business into the future crop, a risky move as there are any number of things that might happen to decrease his actual tobacco gains. Yet Trywell must do what he has to in order to help his family survive another day, no matter what trouble it might bring for their survival (and profits) in the future. These deals take great cleverness, something Trywell has in spades though he has little formal schooling.

Meanwhile, the corn crop continues to ripen. William estimates twenty more days before the first green maize, called dowe, will be ready to eat. He dreams about the sweet taste of this plant, likening it to American corn on the cob. Rumors that the dowe is already ready in the southwest cause a stampede of people rushing toward the food source and worse thievery along the road. On February 27th, President Muluzi informs the people that there is a hunger crisis, after nearly five months of intense suffering in rural Malawi.

Even in the midst of a famine, William finds ways to draw similarities between Malawians and Americans. Though their circumstances are different, as most Americans do not have to deal with a food crisis of this magnitude, the things that people enjoy – like corn on the cob – are the same in many places. Now that the end of the crisis is in sight, President Muluzi finally recognizes the danger his people are in, too late to actually help most of the casualties.

At the beginning of March, William begins checking the dowe to see if it is ready. Finally, the crop is ripe and William races back to his house with arms full of dowe. He and his sisters hurriedly cook the ears of corn, not even waiting for them to cool before devouring every last kernel. Through a stroke of good fortune, the pumpkins are also ready in the fields, and the Kamkwamba family has its first hearty supper in months. William tells Geoffrey that they are like the seeds from a parable that Jesus once told—planted on fertile soil, and able to survive.

The Kamkwamba family's constant hope and hard work has paid off as the harvest comes in. William compares his optimism to the biblical story that tells of seeds who fall in many different types of soil. The seeds, symbolizing people, are choked by weeds and thorns or scorched by sun as people choose not follow the God's laws for their lives. The seeds in good soil thrive because they were obedient to God and remained faithful, just as the Kamkwambas stayed as positive as possible during the famine.

As dowe and pumpkins bring people back from the edge of starvation, the village begins to reawaken. While life cannot really return to normal until the next harvest, people smile and chatter in the street instead of speaking only of hunger and ganyu. However, the dowe also brings thieves who creep into fields at night and devour all the ripe dowe they can find. Some farmers exact horrible revenge on these thieves, but Trywell counsels William that all Malawians faced the same hunger, and they must learn to forgive.

The harsh times of the famine make it hard for many people to erase their mentality of personal survival at all costs. Trywell helps William learn an alternate philosophy that always treats others with kindness and respect. William, following in his father's footsteps, constantly tries to help people even when he knows that people might not give him the same courtesy. Trywell sees survival as a collective effort and does not hold a grudge against the people who steal food because they need it so badly.

CHAPTER 9

During the famine, most students stopped going to school, but the arrival of dowe and pumpkins means that the village has enough energy to resume classes. Sadly, William still cannot afford the school fees and spends his days playing games in the trading center instead of in class. Missing the mental stimulation, William decides to go to the small library at the Wimbe primary school stocked with American books.

Education is one of the most important things to William, and his disappointment about the lack of school even somewhat overshadows the joy of the end of the famine. Instead of giving up without formal school, William takes his education into his own hands by going to the library.

The librarian, Mrs. Edith Sikelo, greets William at the library and explains the rules for borrowing books. William is pleasantly surprised to find that the library houses more than just primary readers. Despite the variety of books, William checks the textbooks that his classmates are studying in school in the hopes that he can independently catch up before classes start next year. He goes to the library each morning and studies under the blue gum tree in his yard all afternoon. Gilbert helps William stay on track by loaning William his notes each day, but William still struggles because the English books are difficult for him to understand on his own.

The library at Wimbe Primary, though very small, is stocked with books in English on a range of topics (as a result of foreign aid organizations). This aid is an invaluable resource for the village and could offer William information on subjects beyond what is taught in the Malawian school curriculum, but William is still focused on achieving as much as he can within the school system itself. Gilbert once again forms a source of support for William's desires to gain an education.

One Saturday, Gilbert and William meet at the library. William finds a science textbook with diagrams and pictures that he finds very easy to understand. One of these diagrams explains how hydro plants, such as the one on the Shire River in southern Malawi, use water to produce electricity. William compares this to a bicycle dynamo and beings to wonder how he could set up a machine that would generate electricity for his family. Another book, *Explaining Physics*, illustrates scientific concepts that William has wondered about for years. William checks out both books and begins working his way through the complicated English explanations.

Though William's English language skills are lacking, he has an incredible ability to instinctively understand engineering and physical concepts in diagrams. He puts this natural scientific aptitude to work explaining the technology that people in his village use every day without fully understanding it. William wants to use this knowledge to improve life for his family and his larger village. While the books are difficult for William to get through, he is lucky to have these books available when other rural students might not have that advantage.

William continues to read *Explaining Physics*, finding a chapter on magnets and electromagnets. William already knew that magnets have opposing sides that attract or repel each other, but uses the book to learn how to make his own magnets using the earth's magnetic field, electricity, and a nail. Magnets can also create electricity, when a coil of wire spins in a magnetic field. This is called alternating current, as opposed to the direct current in most batteries. Bicycle dynamos are one of the best examples of an alternating current, with the rider providing the spinning motion. William keeps *Explaining Physics* for a month and reads it instead of continuing his independent school study.

William brings together the formal education he finds in the American textbooks with the informal experiments he has been doing throughout his childhood with the technology available to him. Kamkwamba takes the opportunity to give a brief, easily accessible explanation of how some of these scientific concepts work, giving his readers the same opportunity to grasp how these scientific principles can be used to improve every day life through inventions like radios or bicycle dynamos.

When the school term ends, Gilbert and William go back to the library looking for something fun to read. William stumbles across an American textbook called *Using Energy*, a book that will change his life. On the cover are **windmills**, though William doesn't even know what a windmill is at this point. The book explains how energy is found all around us, and just needs to be converted into the proper form in order to be used. Windmills can harness the motion and energy of the wind to create electricity. William understands how the wind could provide the necessary force to generate electricity just like in a bicycle dynamo, but without the effort of a bicycle rider.

This one textbook gives William the knowledge he needs to finally effect change for his family and his community. William has previously wondered about how to save the rural farmers labor while giving them the advantages enjoyed by urban dwellers or people in more developed countries. A windmill is the perfect way to use a renewable and free resource in order to give his community the leg up it needs.

William begins to dream of all the things a **windmill** could do for him and his family, including creating electric light to replace kerosene lamps and a rotating pump to irrigate and water the fields. A good pump would allow the Kamkwambas to harvest twice a year – a tantalizing prospect after the horror of the famine. A windmill promises William release from the darkness and hunger that has marked the past year of his life, and the freedom to go to school instead of working the farm. Armed with the knowledge that someone built a windmill for the picture in this textbook, William imagines that he too can build a windmill.

William's confidence and optimism are put to good use when he dreams of building a windmill. Despite the fact that he has never seen a windmill in real life, William sees that it is theoretically possible and believes that he can build it. While others might have been too put off by the sheer amount of work it will take to make a windmill in less than ideal conditions, William is able to see past that to the amazing potential that a windmill could have for his family.

William experiments with small prototypes before tackling a giant **windmill**. He starts to gather materials for blades, a shaft, and a rotor as well as looking for wires and a dynamo to generate electricity from the movement of the blades. He splits an old plastic perfume bottle into blades, then adds PVC pipe extenders. William creates a makeshift drill out of a nail and a maize cob to bore holes in the PVC pipe and wire it to the blades. Agnes catches William heating his drill on her cook fire and tells William to stop messing with toys and help his father in the field. William cannot yet explain that this "toy" will eventually be much more help to farmers.

True to his engineer heart, William starts with a small prototype that he will later reinvent for a full-sized windmill. This prototype is made entirely of recycled pieces, showing how adept William is at using what is available for the task he needs to accomplish. However, his mother does not fully understand what William is doing. Agnes is generally supportive of her son, but sees the more practical aspects of William's project rather than his dream.

Now William needs a dynamo, but he has no money to buy the shiny bicycle dynamo he has seen in the windows of Daud's shop at the trading center. He considers earning the five hundred kwacha through ganyu, then realizes that this prototype **windmill** could actually use a smaller generator such as a radio-cassette player motor. William goes to Geoffrey's house and explains why he needs a radio motor. Geoffrey is eager to help, though he had originally though William's constant trips to the library were boring and useless.

William constantly figures out ways to get what he needs, reforming his plan when one pathway comes to a dead end. Geoffrey's support is vital at this juncture, when no one else understands why William is "wasting" his time with this project. Geoffrey is also an example of someone who values education for its practical applications, rather than for the pursuit of knowledge alone.

William and Geoffrey extract the radio motor and attach it to William's blade contraption. They hunt through the garbage to find a woman's shoe and use a piece of rubber from the sole to make sure that the motor's wheel and the blades have enough friction to catch together when the blades move. Geoffrey spins the blades by hand and William tests the current by pressing the motor's wires to his tongue. Their prototype works. They then test the prototype by wiring their **windmill** to Geoffrey's radio. When the wind blows, the radio produces music!

William and Geoffrey will go to just about any lengths in gathering materials for their project, even digging through the trash to find materials that can be given new life in their windmill. They are also unafraid of the potential for danger in working with electricity, to the point of shocking themselves just to see if their machine works. This somewhat foolish bravery allows them to be successful.

Moving on from this small success, William dreams bigger. Working from the same model of his prototype, William plans out the pieces he will need for a full size windmill. For the next month, William hunts through the abandoned scrap yard of a large tobacco estate near Kachokolo school. William and Gilbert had often played there, but William now sees the wealth of materials the scrap yard holds for his plan.

William's windmill project not only serves to revitalize William's own desire for mental stimulation, it also reuses materials that had been left to rust by the town. Recycling machinery in this way benefits the village by getting rid of dangerous junk piles and using that material for a new and better purpose.

The first afternoon, William finds a tractor fan that will be perfect for the **windmill**'s rotor and a tractor piston he can use for the shaft. Three days later, he finds a ball bearing to reduce friction in the windmill, and painstakingly pops the bearing out of an old nut-grinding machine while pretending to be his childhood hero Bolo in order to ignore the pain in his hands. As he works, William looks across to the grounds of Kachokolo school and hopes that the tobacco crop will earn enough money for his family to pay the school fees and allow him to return to class when the new term starts.

William's project takes not just mental effort, but intense physical toughness. Calling all the way back to the first chapter, when William and his friends would play act the plots of the American films they saw, now William channels Bolo, a Chinese martial arts actor and bodybuilder, in order to gain the inspiration he needs to keep at this painful work reclaiming pieces in the scrap yard. Similarly, Kamkwamba hopes his own story of hard work and success will inspire other people in poverty to find new ways to improve their lives.

CHAPTER 10

As the new school term approaches, Trywell buys William new school supplies and William washes his uniform in preparation for a return to classes. The night before classes start, William worries whether his independent study was enough to keep him in line with the other students. Gilbert and William walk to Kachokolo together the next morning, and William enjoys seeing his old school friends – though some students are conspicuously absent after the famine.

School holds a central role in William's life, as he and his family are intensely concerned with William's education. Though it is a place of learning, school is also a chance for William to get together with the other boys of his community. It offers a social aspect that helps bring the community back together after the often isolating hardship of the famine.

William is woefully behind in many subjects and struggles to keep up for the next two weeks. After ten days, the grace period for paying school fees is nearly over and William worries because Trywell has not said anything about paying them. When Headmaster Phiri announces that students must pay last year's fees as well as this year's in order to continue with classes, William knows he won't be able to afford it. Instead, William tries to sneak into class without paying by hiding in the latrine during the morning roll call and sitting in the back corner of class to listen and learn.

Funding for school is a constant worry in William's young life. The school system is unforgiving to those who can't pay the fees, remembering debts of past years as well as the current fees. Thus the obstacles to gaining an education are even higher in rural areas where school attendance is interrupted for various reasons. William is far from the only student affect by the added fees, but he is one of the few who takes the initiative to bypass the fee and gain his education anyway.

William attends school without paying for another two weeks before the teachers catch him without a receipt of payment. Trywell goes to the teacher, Mister Tembo, pleading with him to let William stay until they have the money. Surprisingly, Mister Tembo gives William three more weeks of school, so Trywell has time to raise funds by selling the tobacco crop. William enjoys his free weeks of school, but the tobacco crop is not as lucrative as expected due to the large number of deals Trywell struck during the famine. Once all the debts have been paid, Trywell is left with only enough for the family to live and eat.

Though Trywell would like to appear self-sufficient and successful at all times to maintain his pride in the village, William's schooling is important enough that Trywell will resort to begging the teacher to let William stay until they have the money. But again, the demands of survival outweigh the cost of school fees – no matter how dearly both Trywell and William would like to keep William in school.

Trywell is devastated that he doesn't have the money to send William to school, and the school cannot continue to let William go for free for fear of government inspections. For a daughter, the hope of a good marriage can provide a better life, but education is the only way for the sons of a farming family to aspire to something more than living at the mercy of the harvest. William knows that his future will bring nothing more than the business of survival as long as he is a farmer like his father.

The government in Malawi takes an unforgiving stance on education, looking only at the monetary cost and not at the good it could do for its citizens. This is especially troubling for William because a lack of education means he has little chance of making a better life for himself. Men in Malawi are expected to provide for themselves and their families, so without further education William's options are extremely limited.

William has no time to mourn the loss of school, as the harvest comes and Trywell needs help bringing in the maize crop. Though disappointed, William is satisfied to see all the bitter work during the famine pay off. It's the best crop the Kamkwamba family has seen in years and the storehouse is full of grain. Now that they are all putting on weight, the Kamkwambas laugh about how skinny they had all been.

Work on the farm keeps William physically busy, but it does not give him the mental stimulation he craves. After the famine the Kamkwambas' natural optimism and sense of humor return, such that they are even able to joke about the horror of the threat of starvation.

When the harvest is over, William returns to his **windmill** project. He takes home tons of interesting pieces of machinery from the scrap yard and puzzles over their functions. Additionally, William asks Trywell if he can use the broken bicycle that Trywell has kept in the living room for months, waiting for the funds to repair it. Trywell doesn't want to waste a bicycle on a silly project, but finally agrees when William explains that his windmill could give the Kamkwambas a second harvest each year. William's room begins to look like a scrap heap, and he refuses to let his sisters clean it for fear they will throw out something important.

Without school and the farm keeping him busy, William remains self-disciplined enough to challenge himself with the windmill project. He also manages to persuade his father to believe in his dream, giving William the emotional and material support he needs to keep going. William becomes obsessed with the windmill, to the point where almost all of his waking time is spent pursuing pieces for it – displaying a common trait among engineers of keeping any piece that looks remotely useful. Despite his unorthodox beginning, William fits in easily with the life of an inventor.

William spends all his time on the **windmill**, much to the chagrin of his sisters, who have to go to primary school and work in the house all day. The windmill and the scrap yard begin to replace school in William's mind, as he goes to the library again and again to review the books on electricity and currents. He spends days in the scrap yard pretending to be a famous mechanic.

Once formal schooling is no longer an option, William fills in those gaps for himself with the hands-on experience he gets in the scrap yard and the theoretical foundation he gets in the library. These two things come together to help William keep moving toward his dream of becoming more than a farmer, as when he pretends to be a famous mechanic.

Though William is happy spending days learning about machinery in the scrap yard, the villagers begin to gossip that William has gone crazy digging through garbage. With Geoffrey away working with Uncle Musaiwale, Gilbert is William's only supporter. Even Agnes begins to worry that William will never have a normal life, through Trywell defends William's project.

William has enough support between his friends and his father that he can ignore the grumblings of the villagers and keep going with his project. Yet Kamkwamba looks back on this time with dismay that the very people he wanted to help with his inventions, such as his mother, did not believe in his abilities when he first started working toward his dream.

After pounding flat more PVC pipe and shaping the plastic into blades, William now needs nuts and bolts to connect the blades to the rotor. Gilbert steps in and buys William a fresh bag of nuts and bolts when all the scrap yard bolts are too rusted to use. William earns 200 kwacha working ganyu and is able to pay a welder, Mister Godsten, to weld together his shock absorber and bicycle sprocket, as well as melt holes in the tractor fan rotor for the plastic blades. Mister Godsten calls William crazy, but eventually agrees to do the job.

Though William finds pieces through recycling other materials and reusing old machines as often as possible, there are some instances when he truly needs new supplies. These junctures show the importance of outside support, providing William with things like quality nuts and bolts when he cannot find these things for himself. Though Gilbert is whole-heartedly committed to helping William achieve his dream, others in the village are still skeptical.

William now has all the **windmill** pieces in place except a generator. With no money to buy a bicycle dynamo from Daud, William decides to build his own AC generator using magnets made from nails and wire. It is hard to find wire in the scrap yard, as other boys strip the old motors of wire so that they can shape wire cars for toys.

William remains unflaggingly committed to his goal, even when it seems as though the parts that he needs are impossible to obtain. Other children in the village also make toys by recycling other products, but they do not have William's vision or drive to achieve more with an invention.

A month later, William still has nothing for a generator and complains to Gilbert that his **windmill** dream will never come true. Just then, a young man on a bicycle rides by with a dynamo attached to the back wheel. Gilbert buys the dynamo from the boy for 200 kwacha and gives it to William. William thanks Gilbert over and over, then runs home and places the prized dynamo next to all of his waiting windmill pieces.

William's hard work and ingenuity are crucial to his success, but creating the windmill also depends on William receiving help at the right times. Gilbert is often the source of the very thing that William needs, showing how William leans on his friends and collaborates with people to make an invention that will eventually help his entire community. This windmill may be William's idea, but it is a shared effort to build it.

CHAPTER 11

William starts to put his **windmill** together, arranging everything on the ground outside his kitchen where there is both shade and a good steady breeze. He uses his maize-cob drill to bore holes in the tractor fan and attach his plastic blades using beer bottle caps for washers and bamboo sticks for reinforcement. The wingspan of the blade system is over eight feet when he is done.

William finally gets to put together all of his recycled pieces, still using the somewhat rustic methods that he used for his prototype. Yet this product is more than just a toy, with a wingspan large enough to match some professionally-made windmills in the United States.

William then turns to attaching the bicycle and dynamo to the tractor fan, manipulating the heavy and unwieldy bicycle frame and shock absorber until it is lined up correctly with the center hole of the tractor fan. William secures it together with a cotter pin, fastens the dynamo to the bicycle tire, and strings the bike chain through both sprockets. After all this work, it is dark. William goes inside and quickly falls asleep after a bath.

Though the mechanics of the windmill needed William's engineering knowledge and academic ability, putting together the object itself also requires a large amount of physical strength to move the heavy pieces. William is not afraid of the hard work necessary to achieve his dream.

At first light the next morning, William begins building a temporary tower to see if his **windmill** machinery will actually work. William builds a pole out of bamboo, and convinces Geoffrey to help him lift the windmill onto the pole. Geoffrey then releases the bent bicycle spoke that keeps the blades from spinning and the blades begin to turn. Soon the blades are spinning so fast that the bicycle chain snaps and the tower nearly crashes down. William and Geoffrey catch the windmill before it breaks.

Geoffrey again comes to help William when he needs it, making it possible for William to do things he could never accomplish on his own. With the windmill, William has to go through many layers of trial and error, reinventing his project when something doesn't work out how he planned originally.

William repairs the bicycle chain and hoists the **windmill** back up at an angle away from the strongest wind. He then attaches the windmill's dynamo to Trywell's radio to see if the windmill is producing any power. The radio plays music for a second and then starts smoking because the windmill produces too many volts for the tiny radio. William begins working on a way to dissipate the voltage from the windmill so that he can use the electricity it generates. He winds extra copper wire around a stick so that the electricity has to travel farther to reach the radio, and he is able to hook up the radio so that the wires clear out the extra voltage and the radio can play using wind-generated electricity.

William's windmill is actually too powerful for the purposes he wants it for, meaning that he has to try again to make the energy created by the windmill usable. While it might seem that making the windmill is the hard part, the small details are actually more important for making William's project successful. Geoffrey is worried about the effect on the radio, but William is singularly focused on his windmill project, no matter what he has to sacrifice to make it work.

With the **windmill** test successful, William, Geoffrey, and Gilbert begin to build a real tower. Gathering wood from the same blue gum grove where William had tried the mangolomera magic ritual, the boys cut down three trees for the tower. They carry the trunks back to William's house and construct a tower 16 feet tall using nails bought with Geoffrey's paycheck from Uncle Musaiwale.

At the moment of William's scientific triumph, he returns to the site where magic failed him. With the success of his windmill, science replaces magic in William's conception of what controls the world. However, this success is also dependent on the financial and physical support of his friends and family.

At 7 the next morning, Geoffrey and Gilbert return to help William hoist the **windmill** on top of the tower. Using Agnes' clothesline wire, the boys make a pulley system and take half an hour to pull the heavy windmill to the top of the tower. William then secures the windmill with sturdy bolts. People from the village begin to notice William on top of this tower and come to see what he is doing. When they ask what the machine is, William tells them it is "electric wind," as Chichewa has no word for windmill.

William continues to show his ingenuity by thinking of ways to invent small things, like a clothes line pulley system, to make it easier to construct the larger invention of the windmill. The whole community comes together to see if William will be successful or not, though the concept of a windmill is so foreign to them that there is no word for it in the Malawian Chichewa language.

With the **windmill** finally steady on its tower, William collects a small contraption he has wired to the dynamo's lightbulb to test the windmill's current. He climbs back up the tower with the lightbulb as the crowd watches on, calling him crazy. William, picturing his success, pulls the bicycle spoke out from the windmill blades and prays that it will work. The lightbulb flickers, then holds a steady light. William and the crowd scream in disbelief and joy. William stays up on the tower for half an hour, basking in the glow of his hard work and achievement.

This moment of William's success is a triumphant experience for the entire village, as the community still comes together to celebrate each other's victories. The small lightbulb may be tiny in the grand scheme of things, but it symbolizes the culmination of all of William's hard work despite the lackluster support of the community while he was building the windmill. This lightbulb represents the start of how far William's windmill can go.

For the next month, people come to see William's **windmill** every day. Some even travel from other districts to see this miracle with their own eyes and compliment the Kamkwambas on their intelligent son. William boasts about his electric wind, especially to Mister Iponga in the trading center when electricity is cut off from a government power cut.

William becomes somewhat famous in his district, and a credit to his family. William is especially proud of circumventing the government in creating free electricity for his family, showing how William feels that he has to go around corrupt official policies in order to be successful.

William then starts to wire electricity into his room. Gilbert again helps William buy supplies, making a deal with Charity for quality, insulated copper wire. William connects this wire to the dynamo on the **windmill**, then runs wire into his room along the wooden roof and dangles the dynamo lightbulb from his ceiling. His sisters are jealous that William has light in his room, and William begins to daydream about lighting his whole house and even getting a battery to store power for days when it is not windy. From there, it is only a small step to the huge money-saving inventions that will shield William's family from hunger.

Though the windmill was the largest part of William's hard work, his dream of bringing electricity to his house requires a little more work. William's inventions are a constant process of reinventing and adapting the materials on hand to serve new purposes. William is not content to rest on his achievement, but keeps dreaming bigger of new inventions that can help his family even more.

CHAPTER 12

The **windmill** only works when the wind is blowing, so William begins searching for a battery to save up power. Meanwhile, he puts the windmill to new uses by helping his cousin Ruth charge her cell phone. Ruth is from the larger town of Mzuzu and always bothers William to take her phone to the trading center to charge while she is visiting her father Socrates. Men in the trading center have charging stations with high rates for charging phones, or even using phones, photocopiers, or electric typewriters on the street. However, William needs to force his windmill to produce more power to charge a phone than he usually needs to power a lightbulb.

William's windmill was first intended to light his house, but William continues to find new ways to use the electricity it generates. Charging cell phones is another way to give rural Malawians the same autonomy that urban dwellers have without the interference of a middle man who drives up the price. Giving his neighbors easier access to this technology is another way that William wants to improve the quality of life for his entire village.

William needs a step-up transformer to create more energy from the electricity his **windmill** creates, like those that are used in power companies all over America and Europe. A step-up transformer passes a current between two wire coils until the current is much stronger than it was originally. Using a diagram from *Explaining Physics*, William makes his own step-up transformer by wrapping wire around an iron sheet with E-shaped prongs, and he is able to boost his windmill enough to charge Ruth's phone. William also makes electrical sockets for his walls out of old radio plugs and sets up a small business charging phones for others in the village.

William's windmill may look very different from the windmills used in America or Europe, but it works on the same general principles, and William continues to have the confidence that he can do anything that larger power companies have done. Using the information from one of the life-changing textbooks and his own resourceful ability to find new uses for recycled materials, William is successful with this next goal as well.

After two months, William finally buys a car battery from Charity, who says it "fell off a truck." To charge the battery, William has to convert his windmill's AC power to DC power by using a diode from an old radio. With the battery working, William can light his whole house using parallel circuits after he finds lightbulbs that can run using DC power. William even creates light switches out of PVC pipe and circles of material from a flip-flop. Trywell is incredibly proud of the Kamkwambas' house powered by free electricity, and even prouder that his son built it all.

William does not acknowledge fully that Charity most likely obtained the battery in an illegal manner, as saying an item fell off a truck is usually a euphemism for stealing. Yet William is not above using these materials no matter where they came from in service to his larger goal. Trywell also appreciates that William has gone around the legal methods of getting electricity, as both William and Trywell want to minimize the need for government involvement in their lives.

Having light in the house is definitely a benefit for the Kamkwambas, but it comes with risks. William was forced to use wire he found in the trash or the scrap yard, meaning that most had lost their plastic insulation and could potentially start a fire. Worse, the Kamkwambas' roof is infested with termites whose chewing might cause all the wires to come crashing down on the Kamkwambas' heads. One afternoon, termites do break through the roof in William's room and William has to call in the chickens to eat all the squirming bugs. In all the commotion, William doesn't notice that the wires cross and spark, but luckily the wires are so cheap that they simply melt and break instead of starting a fire.

While William's ability to recycle materials makes the windmill possible, it also means that he sometimes has to accept sub-par components for his windmill that are not fully able to support the energy that William wants to use. Aspects of rural life, such as bugs and chickens, interrupt William's desire to update and elevate conditions for his family. However, the cheap condition of his wires is also a benefit at times, though William is undoubtedly lucky that his project did not cause any disasters for his family.

William starts to build a proper wiring system using diagrams from *Explaining Physics*. He needs a circuit breaker that will stop the power if too much current comes at once so that the wires in the house don't melt. With no way to make normal circuit breaker fuses, William makes an electric bell system using nails and a bar magnet that would cut off the power to the house if the current was ever too large. Two weeks later, William's circuit breaker is tested by a cyclone. The huge winds overload the windmill, but the circuit breaker trips and keeps the power from reaching the wires in the house. William is happy his invention worked, but Geoffrey tells him he should fix his roof.

Having identified the biggest problems with his previous wiring, William gets to work fixing those issues. Though he understands the concepts of a traditional circuit breaker, he has to adapt his projects to the materials that are possible to find in his village. While Geoffrey sees the practical problems still involved with William's inventions, William is more pleased that his inventions worked than upset that his house had to withstand a cyclone. As an inventor, William turns even difficult situations into chances to use his newest projects.

Another problem with William's **windmill** is the small bike chain that often snaps when the wind blows too hard. William has to go up the tower and fix it, risking injury to his hands from the sharp tractor fan and spinning metal blades. He uses a small piece of rubber bicycle tire to grab the jagged bicycle sprocket and stop the blades from spinning while he fixes the chain, but the sprocket often slices William's hands.

William's amazing windmill still has structural issues from the past lives of its pieces. William tries to compensate for these difficulties, even withstanding bodily harm in order to keep his windmill working. William's inventions are more important to him than his personal safety.

During this time, Geoffrey continues to work with Uncle Musaiwale in a maize mill the next town over. Geoffrey advises William to get a rubber belt like the ones used in the maize mill to replace the troublesome bicycle chain on the **windmill**. William finds pulleys in the scrap yard and asks Mister Godsten to weld them to the windmill's shock absorber (as well as grind down the sharp teeth of the sprocket) so that they can hold the belt in place. But William still needs a real rubber belt. William uses various problematic fixes until Geoffrey brings back a real belt from the maize mill. Finally, William can leave his windmill to do its job without his constant work troubleshooting the various jury-rigged pieces.

Geoffrey supports William's project by giving him new ideas and eventually making it possible for William to implement significant improvements to the windmill. Now seeing the benefits that William's windmill can bring to the village, other people who thought that William was crazy at first, like Mister Godsten, are now happy to help him add on to this invention. Yet no matter how resourceful William is, he sometimes has to accept the help from his friends for his own peace of mind.

CHAPTER 13

William's family still has no money to send him to school, and indeed are too poor to buy tobacco seeds or fertilizer. William is tortured by advertisements for schools on the radio, but knows that his father cannot think about school costs until all the debts on the farm are paid. William works on the farm and plays games in the trading center, trying to avoid becoming one of the boys who have dropped out of school and "groove" through life working a little each day with no plan for the future.

While William's windmill was a significant achievement, the problems of gaining an education in a rural area are still prevalent. William desperately wants to stay motivated and continue working towards a better future, though this is a hard prospect for many other rural Malawians who cannot pay the fees for school. The lack of education hurts many in the community by robbing young people of their futures.

To keep his mind occupied without school, William returns to the library every week. Feeling pressured to come up with another project as successful as his **windmill**, William decides to build a radio transmitter. He experiments with radio frequencies by tuning two radios to the same frequency so that one radio's signal cancels out the other's. William then uses a Walkman with a radio and a cassette player to play cassette tapes over the radio frequency and hear the cassette music through the second radio.

William returns to radios, the first thing he experimented with in order to understand some of the technology that powers his world. With the increased knowledge he has from the textbooks, William can move from just repairing radios to fully controlling how the radio functions and plays music.

Rewiring the radio and attaching a microphone, William and Geoffrey find out that William can broadcast his voice over the radio frequency up to 300 feet. Now, the boys need an amplifier to send their radio frequency farther. Geoffrey is afraid that the government will arrest them for messing with the radio signals, but William thinks it would be an honor to be arrested for his inventions.

William always prioritizes his inventions above the possibility of government action. Putting his own voice over radio frequencies that are otherwise reserved only for government programs symbolizes how William wants to control his own life without the dominating authority of the government.

William is also anxious to get to work on a water pump. He digs up PVC irrigation pipes from the scrap yard that are long enough to reach the bottom of his family's well. He fashions a piston out of the metal pipe and a handle so that pushing on the metal pipe forces water out of the plastic pipe. Yet the rubber stopper William uses to create the vacuum that forces water up creates too much friction and the women of the village say the pump is too hard to use. William eventually gives up on the pump.

Not all of William's inventions are successful, as the materials that he has to work with are often not the ideal components for his projects. While the theories behind this water pump are sound, there is only so much William can do without funds and while using solely recycled materials.

William also fails to create biogas (liquid fuel made of animal waste), which he hoped would save his sisters the arduous job of collecting firewood and halt the damaging effects of deforestation in Wimbe district. After setting fire to a piece of grass using wire attached to the windmill, William hopes to boil water using windmill power. That experiment proves too easy, and William then foolishly rushes to try to make biogas.

William's boundless enthusiasm for new scientific inventions sometimes gets him in trouble. The first experiment of boiling water using electricity is too simple, as William always wants to push the boundaries of what he can accomplish. His confidence and enthusiasm are huge benefits to his abilities as an inventor, but must sometimes be reigned in.

William gathers goat droppings and dumps the feces in a clay pot in the kitchen while his mother works in the garden. Sealing the top of the pot tightly with a plastic shopping bag and a makeshift radio antennae valve, William sets the pot on the cooking fire and waits to see if the feces will let off biogas. Before William can check his experiment, Agnes comes into the kitchen yelling about the terrible smell. William attempts to justify his experiment by lighting a reed on fire and touching it to the vile white steam now rising from the pot, but the reed just sputters out and dies. Agnes is left muttering about William's silly experiment ruining her pot.

William's family supports his inventions, but they sometimes have to put up with the negative consequences of experiments gone wrong. William will go to any lengths for the sake of an experiment, even if it means bringing goat feces into the house. While his intentions are good with the biogas experiment, he takes it too far by not thinking through how to cause as little damage as possible if the trial does not happen as planned.

In 2003, Agnes goes to visit her parents in Salima and returns with malaria. Almost everyone in sub-Saharan Africa suffers from malaria at some point in their lives, especially those like the Kamkwambas who can't afford to put mosquito netting around their beds. Agnes gets sicker more quickly than usual, and Trywell takes her to the large hospital on his bike. They give her two shots and send her home, but Agnes slips into a coma two days later. The Kamkwambas borrow the neighbor's truck and rush her to the hospital once more, where they find that the malaria has spread to her brain.

While William can do a lot to improve conditions for his family through his inventions, there are still aspects of poor, rural life in Malawi that William can do nothing to change. Malaria is one of the leading causes of illness in Malawi, especially among children under 5 and pregnant women. This disease is something that the Kamkwamba family is well used to dealing with, but they can do comparatively little to ensure that they survive it.

William is terrified of the hospital itself, and seeing his mother looking so sick in the hospital bed. Agnes later tells William that she had already given up on life, but couldn't leave this Earth because she saw many people standing around her bed. Agnes dreamed of baby Tiyamike, crying for her mother, and finally managed to wake up from the coma. When Agnes wakes, she yells for Tiyamike, frightening William even more. A few days later, after slipping in and out of consciousness, Agnes' fever finally breaks.

Agnes holds on to survival for the sake of her family, doing everything she can for them. Agnes' commitment to her family inspires William to continue to work to help them improve their lives despite the often overwhelming obstacles facing them due to the lack of sufficient health care. Though the clinic is a better choice than the magic healing of a witch doctor, it is still not a comforting environment.

Soon after Agnes returns home from the hospital, Gilbert tells William that Chief Wimbe is very ill. After a few months, Chief Wimbe dies and the entire district begins mourning and funeral preparations. Hundreds of people come to Chief Wimbe's house to pay their respects, while William and Geoffrey try to comfort Gilbert. At the funeral, the Gule Wamkulu dance over Chief Wimbe's gravesite and Chief Wimbe's coffin is laid into its special compartment in the ground.

Though William does not approve of magic in general, he still respects the place that magical rituals like the dance of the Gule Wamkulu have in the cultural landscape of Malawi. Especially at an emotionally charged moment like a funeral, the traditional superstitions of Malawi give important support to the entire community.

Already reeling from the death of the chief, Wimbe also confronts another famine. Though the village was hopeful that the election of Bingu wa Mutharika as president in 2004 would signal better times for farmers, including subsidies for seeds and fertilizer, corrupt officials ensure that most of this aid profits their friends instead of reaching rural farmers. The Kamkwambas manage to get a few bags of fertilizer and plant their seeds, but the rain stops in January of 2006 and the crops quickly wither and die.

Even when the head of the government attempts to provide adequate aid for the farmers, the structure of the government chain of command keeps that help from doing what is necessary to lift up the farmers who form the basis of the Malawian economy. The Kamkwambas must again face the slim odds of survival without depending on the government for anything.

Knowing that this harvest will be terrible, the government promises to intervene. However, people in William's village are scared and suspicious, turning to anything they can to blame for this bad luck and weather. Stories of vampires and mythical beasts run wild, as well as reports of people having their private parts cut off and stolen in the night.

In times of trouble, the emotional toll on people leads to an increased dependence on magic, as people look for anything to give them a sense of control over the vagaries of the weather. Yet most magic is still a negative force that causes bad things for people instead of good things.

In Wimbe, rumors grow of witches using children to hurt good Christians, until one young boy reports that witches punished him for losing a soccer game against the witch children of Tanzania by ordering him to kill his grandfather. Police ask the boy who in the village is the witch, then beat the man accused by the young boy within inches of his life. William laments that the Malawian government has no provisions in the constitution for convicting wizards and witches of witchcraft.

Kamkwamba is extremely ambiguous about whether he truly wants the Malawian government to have a better system for dealing with magical crimes. On the one hand, Kamkwamba seems to feel pity for the man who was beaten for being a witch, but he also appears sincere in asking for more protection for people who have been harmed by magical means.

In March of 2006, rainclouds gather on the horizon in Wimbe, but a strong wind blows them away. People in the village blame William's **windmill** for calling witches and causing the drought. William attempts to explain, but knows that there is little he can say to convince people that the windmill is science, not magic. Luckily, people give up complaining about the windmill when the government releases maize and aid agencies step in to make sure that no one starves and dies.

The opposition between magic and science comes to a head when the other villagers see William's windmill as an agent of dark magic. While William sees the windmill as the height of the good that science can do, people's fear and uncertainty scapegoat the windmill as the cause of all their bad luck this year. Fortunately, the Malawian government works for people's good in a rare instance of truly addressing the needs of the people during this food crisis.

Magic is also blamed for the HIV/AIDS crisis in Malawi. William estimates that 20% of Malawians are infected and that the stigma of HIV and witches claiming to correct any "bewitchment" keep people from seeking real medical treatment. Sing'angas treat AIDS with roots and charge outrageous prices without solving anything. There is also harsh teasing and discrimination against anyone who looks like they have AIDS.

While William is ambiguous about his feelings on magic in other areas, he clearly dislikes the way that sing'angas take advantage of people who are ill by selling them false treatments. For something as important as the HIV/AIDS endemic, William advocates for increased use of Western science and medicine.

William joins a club started by health personnel from Wimbe clinic to help people learn the truth about HIV prevention and AIDS treatment. The club offers a classroom-like environment and gives William a place to hang out with his friends. The club puts on a play that teaches people about HIV and explains the benefits of getting tested, showing the experiences of a husband and wife who are tested for HIV and learn how to live healthily if they have the disease. William celebrates the fact that more people in Malawi get tested and treated for HIV in clinics instead of with sing'angas.

William continues to look for opportunities to increase his education and attend a form of school even if it is only focused on raising awareness for medical practices. William recognizes that changing people's perceptions of how to treat disease is a long, slow process, but celebrates the steps that people are making to educate the public about the proper methods of diagnosing and treating this serious condition in Malawi.

William's success with the **windmill** and the HIV club earns him the attention of a teacher at Wimbe primary, who asks him to start a science club for the younger children. William helps the students build a windmill and shows them the amazing things that innovation and invention can accomplish. He is happy to learn that some of the students were so inspired that they went home and built toy windmills in their own yards. He imagines a future for Malawi where every citizen has free electricity at their fingertips.

Already William is beginning to pass his success on to the next generation. By exposing younger children to the ways that scientific discovery changed his own life, William opens the door for many other students to do their own experiments. Kamkwamba imagines the brighter future for Malawi based on all these bright students working together.

CHAPTER 14

In November of 2006, officials from the Malawi Teacher Training Activity come to inspect the library at Wimbe Primary School and notice William's **windmill**. Mrs. Sikelo tells them that William built it, and the officials call back to their boss, Dr. Hartford Mchazime. Dr. Mchazime comes to Wimbe and asks William to explain how he built the windmill and wired his house with electricity. Dr. Mchazime tells Trywell and Agnes that William is an amazing boy for being able to do all this with little formal education, and warns them that a lot more people are going to be interested in William.

While the threat of government inspections kept William out of Kachokolo school when he did not have the money for school fees, this visit of government officials is a huge benefit for William's future. Dr. Mchazime becomes a determined advocate for William, bringing his story to far more people than William would ever have been able to help in his village.

Dr. Mchazime returns to Wimbe the next week with a famous Malawian radio journalist, who interviews William about his **windmill** and his dreams for the future of Malawi. More journalists from the radio and newspapers follow. Dr. Mchazime explains that he wants William to get a lot of attention so that William has a chance to go to school the way so many brilliant rural Malawians cannot. Dr. Mchazime himself only received a rigorous Western education because his own father grew up in poverty and never got the chance to go to school. Dr. Mchazime's father worked twice as hard to send his own children to school in Malawi, America, Britain, and South Africa.

After putting his voice on the radio through transmitter experiments, William now has the chance to share his story on the radio through the official channels. William's struggle to get an education and improve his life mirrors the story of many Malawians, who do whatever they can to go to school and widen their horizons. Dr. Mchazime specifically receives a Western education that gives him the opportunity to travel and see Malawi's potential to be as successful as other countries around the world.

The Kamkwamba family excitedly gathers around the radio when William's interview airs, and celebrates the publications of his newspaper articles. The whole village reassesses its opinion of William's **windmill** and shows pride for William's effort. William gets to work improving his windmill with a taller, sturdier tower, while Dr. Mchazime does what he can to get William a scholarship to a good Malawian boarding school. Many schools are interested in William, but refuse to admit him because he is older than the average student. Dr. Mchazime calls everyone he knows, until officials from the Ministry of Labor promise to find this talented boy a place in a specialized science school.

The increased visibility of William's story through the media benefits William by earning back the trust of the community after the magic scare during the last famine. Yet though William is given more opportunities because of this attention, gaining an education is still an uphill battle at the government-funded school in Malawi. Dr. Mchazime appeals to the Ministry of Labor, showcasing how William's talents could eventually be used to help the entire country if he is given the proper schooling.

Meanwhile, William's story is spreading farther than he ever dreamed. A Malawian software engineer named Soyapi Mumba at Baobab Health, an American NGO that works to update and computerize Malawi's health care system, notices William's article in the Daily Times. Mumba's boss, American Mike McKay, writes about William on his blog Hacktivate and brings William to the attention of Emeka Okafor, a Nigerian blogger and entrepreneur who is planning a conference called TEDGlobal 2007. With Dr. Mchazime's help, William applies to be a fellow at TEDGlobal – a conference focused on the best new ideas in Technology, Entertainment, and Design.

The increased globalization offered by the internet helps William's story reach a wider audience. It is significant that William's journey is shared on a blog written in English, because more people world-wide speak English than the Malawian Chichewa language. TEDGlobal is an effort to bring the newest advancements in technology to more of the world's developing countries, based on their mission statement of educating the public with "ideas worth spreading."

In January, William hears that he has been chosen as a TEDGlobal 2007 fellow and will go present his **windmill** project to other scientists and inventors in Arusha, Tanzania. William is amazed that he will be traveling by plane and staying in a hotel, but Dr. Mchazime has more good news: William is going back to school.

The thought of traveling on a plane and staying in a hotel is almost beyond what William ever dreamed for himself, yet he is possibly more excited about the prospect of going back to school. Even in the midst of TEDGlobal's exciting opportunities, William stays focused on his education.

William's new school, Madisi Secondary, is not a science-oriented school, but it will serve William well and help him catch up all the years of school he missed. William packs everything he owns and says goodbye to Geoffrey and Gilbert, making them promise to take care of his **windmill**. William travels to the small town of Madisi and is amazed at the well-kept state of the Madisi Secondary School building, with real desks, fluorescent lights, and an actual chemistry lab for science class.

Despite William's focus on education, he still has an uphill battle to overcome the years of school that he missed in his rural upbringing. The bar for a "good school" is very low for Malawian students, including the bare minimum of things that would be considered essential for an American school to remain functional.

Though Madisi Secondary is in better shape than Wimbe Primary, it is still struggling to find funds for new supplies in the chemistry lab, new books, and adequate rooms for all of the students. William shares a cramped room with another boy who never washes his feet, and he is teased for his age and rural upbringings. William puts an end to the teasing by showing the other students an article about his **windmill**, impressing the other students with his scientific knowledge. William is incredibly happy to be back at school, but spends most of his time studying alone to keep his mind off of loneliness and missing his family.

The gap between average schools in Malawi and average schools in most of America and Europe shows how far Malawi still needs to go to reach the success enjoyed by those countries. Kamkwamba sees education as one of the best ways to increase conditions across the board in a country, especially opening up access to all students regardless of their background. William has to show how hard he has worked to get to school in order to be accepted by the other boys who had a slightly easier journey to get into this secondary school.

Dr. Mchazime continues to plan the trip to Arusha for William, securing a passport, explaining the etiquette for staying in a hotel and the rules of traveling on an airplane, and buying William new clothes to wear at the conference. That June, William stops home to say hello and goodbye to his parents, then drives to Lilongwe to catch his flight. Through a stroke of luck, William is seated next to Soyapi Mumba on the plane and gets the chance to meet the man who helped William get to the TEDGlobal meeting in the first place.

Gaining an education takes on the new aspect of learning how to navigate a more urban environment as William goes to the TEDGlobal conference. The connections made between people like William and Soyapi is one of the biggest goals of TED meetings, and another sign of how William needs the support of many people in order to be successful on a grander scale.

CHAPTER 15

The plane lands in Arusha, and Soyapi helps William get through customs and onto the correct shuttle for William's hotel. The next morning, William heads to the Ngurtdoto Mountain Lodge outside of Arusha for the TEDGlobal conference, noticing the similarities between Tanzanian and Malawian countryside, as well as the huge difference of Mt. Kilimanjaro. Seeing this amazing mountain fills William with confidence, but he quickly becomes overwhelmed at the sight of so many white and black people speaking a host of different languages into cell phones.

Kamkwamba notes the things that bring African countries together, without ignoring the things that distinguish African countries from each other. William is lifted up by the incredible sight of the Kilimanjaro, the tallest mountain in Africa, using the mountain as a symbol for the height he has reached by coming to such a forward-thinking conference.

Tom Rielly, an American organizer at TEDGlobal, greets William and realizes that this is the boy with the **windmill**. Tom shows William a laptop, the first portable computer that William has ever seen, and copies William's windmill pictures from William's flash drive to a PowerPoint. Tom then amazes William with all the information available on the internet, googling windmills, solar power, and Malawi. William sees more new technology in the next two days than he dreamed was possible.

William's travel to the TEDGlobal conference in Tanzania physically opens up his world, but the increased exposure to new forms of technology also widens William's horizons as an inventor. Seeing what other people have accomplished inspires William to keep reaching towards new goals for himself and better ways to help his village – such as adding solar power to his windmill project.

Yet the most amazing thing about the TEDGlobal is not the technology, but the amazing African people who present their ideas about how to improve life in all of Africa. William is awed by botanists, doctors, inventors, and scientists who have an incredible vision of ways to help their fellow people survive and thrive despite the harsh realities of life in many African countries. William is struck by the idea that Africans constantly and creatively use what other people consider junk to create new life.

William feels kinship with the other African inventors and innovators, drawing from shared backgrounds in hardship yet continually struggling to make improvements. Kamkwamba picks out the principle of recycling as a specifically African trait, using whatever is available to accomplish their goals.

William's turn to present approaches, and the curator of the conference, Chris Anderson, calls William to the stage. William pushes through his nerves and stage fright to answer Chris's questions about the journey to making a **windmill** in Wimbe. Though William is ashamed that his English is not perfect, the crowd erupts in thunderous applause at all that William has accomplished. William is flattered and feels that all the years of struggling through famine, poverty, disease, and teasing have finally paid off.

As amazing as William felt when he realized that his windmill actually generated electricity, he is even more awed by the feeling of acceptance and accomplishment he receives from the audience at TEDGlobal. Making new inventions satisfies William's intellect, but sharing those inventions with others satisfies him more completely.

Tom Rielly is especially moved by William's story and wants to help William raise funds to send back to his family, build a better **windmill** to power an irrigation pump, and cover William's school fees. Several American investors agree to sponsor William, allowing him to buy materials for a new windmill, enroll in a better school in Lilongwe, and buy mobile phones for himself and his family to stay in touch. Tom returns with William to William's village and is even more amazed to see the extent of the electric wiring and other inventions that William created.

As William has already seen, there is only so much he can do to make improvements without funding and materials. The sponsorship of American investors gives William the capital he needs to enact changes he sees as necessary. While the money is a useful tool, it is truly William's vision for how his village could be more fully developed that does the most good in the community. Rielly rightfully gives the credit to William for the incredible things he has achieved.

Back in Lilongwe, William tours the Baobab Health center and learns about Gerry Douglas, a British-Canadian computer scientist who came up with a way for patients to use small computers to easily check in to Malawian clinics and store their medical records for better treatment in the future. Mike McKay and Soyapi give William a tour, even showing William their own plans for electricity-generating windmills and teaching William about deep-cycle batteries. William uses these ideas to improve his own **windmill** back home. With the assistance of solar panels, every home in William's village soon has lights.

The opportunities provided to William through the connections he made at the TEDGlobal conference plug William into an even larger network of people who are working to improve conditions in Africa through innovative technology. William is able to adapt the ideas he discovers with these other investors to bring the benefits back to his village. William constantly adds to his windmill so that it is as beneficial as possible to his entire community.

William is finally accepted to the African Bible College Christian Academy to continue his secondary education in Lilongwe. Gerry Douglas gives William a place to stay in the city and helps William practice his English. William also gets a tutor, Blessings Chikakula, who helps him perfect his English and catch up in class. Blessings had also grown up in a poor village and had his own struggles during the famine before succeeding in going to college at 30 years old. Blessings tells William to never give up.

As part of his education, William has the added burden of learning English so that he can more fully participate in classes that are conducted in this language. Though this adds another obstacle for William to study what he loves, the story of Blessings' journey to becoming a college professor inspires William to keep working. Kamkwamba expresses a hope that his own story will inspire other students as well.

William is able to use the money from his donors to improve his village in many practical ways and give his family better medical care. He also repays Gilbert for all the help that Gilbert offered with the **windmill**, paying Gilbert's school tuition as well as the school fees for his own sisters. William drills a better well for his family and installs a solar powered pump so that the village women do not have to work so hard for clean water. He also finally realizes his dream of making a windmill that powers an irrigation pump for his mother's garden. The people in his village begin calling William "Noah" – the man who saved his family from the destruction of God's flood.

Once William becomes successful, he does not leave behind those who helped him during the times when he had nothing. The things he focuses on most are health care and education, as those things can ripple through an entire community and improve life over many years ahead. He also adds in small practical developments that have an immediate benefit. By calling him "Noah," the other villagers seem to have accepted William's idea that science can overcome the "magical" or "divine" devastation that famine and poverty bring to their lives.

In December of 2007, William visits Tom Rielly in America. He starts in New York City, and appreciates the help of many of Tom's friends who give William clothing when his luggage is lost and show him around the city. William is overwhelmed at all the material things that Americans have, and struggles to see a way for Africans to catch up to that comfortable lifestyle.

William is grateful for the kindness that Rielly's American friends show him, and sees the similarities between Americans and Africans. Yet the trip also reminds him of the gaps in material wealth that separate African and American lives—the result of many factors, one of them a long history of colonialism and exploitation.

Tom and William go to Connecticut to see Jay Walker, another TED speaker and a friend of Tom's. William admires Jay's vast library and all the stories of invention it holds, thinking back to the small library in Wimbe that started everything. Tom and William spend Christmas in Los Angeles, ironically seeing African safari animals for the first time at the San Diego Zoo, and then they go to Las Vegas. Overwhelmed by the lights and bustle of Vegas, William drifts back to the peace of his home in Malawi and the feeling of standing on top of his **windmill** achieving his dream.

As William's world continues to get larger through travel, his intellectual world also widens as he sees the vast collections of knowledge that are now available to him. Though the trip to America seemingly opens up infinite possibilities for William, he does not forget his roots and the hard work that started everything. Tying his own windmill to the incredible array of lights in Las Vegas shows how William continues to dream of new ways that he can improve his village.

William often thinks of home when traveling in America, especially when faced with the huge **windmill** farms in Palm Springs, California. These hundred-foot-tall turbines are controlled by computers to maximize the energy created by the blades. This farm alone creates enough energy to power all of Malawi. Seeing these giant creations gives William hope for everything he can do in the future, including helping other Africans gain an education and invent things to improve their lives without government involvement. William follows the motto: If you want to make it, all you have to do is try.

As when William moved from his small prototype to the larger windmill that now powers his house, he also sees the steps between his windmill and the giant windmills in America. William is not dismayed by the gap between what he has and the windmills of America, but rather inspired to see how far he can take his project. William's motto comes from his first TED presentation, as he continues to put his dreams into action no matter the obstacles or difficulties in his path.

EPILOGUE

In June 2008, William travels to Cape Town, South Africa and speaks about technology in emerging countries at the World Economic Forum on Africa. He explains about his **windmill**, and even gets the chance to inform President Mutharika about the amazing things that he, Geoffrey, and Gilbert did in their little village – just as Mutharika provided government aid to farmers. A picture of William and President Mutharika now hangs on William's family's wall.

Rather than waiting around for the government to improve conditions for his village, William works on his own to improve his village from the ground up. William then has the chance to be recognized for his contributions by the government, showing how important individual action is for the betterment of the country as a whole.

William leaves Cape Town for Chicago, where he is part of an exhibit at the Museum of Science and Industry that honors innovative technology that shapes the world for the better. William finally returns to Malawi to rest and relax with his family and friends as well as do some much needed maintenance on the recycled materials of his **windmill**.

Even with all the amazing things that William experiences around the world, he still focuses on the ways that he can bring improvements to his village. Helping his community grounds William and reminds him why advances in technology are so important in the first place.

William then goes to a language class in Cambridge, England, working on his English in preparation for attending the African Leadership Academy in Johannesburg, South Africa. The old buildings in England, built without modern technology, give William hope that African countries can also improve their infrastructure through hard work and the intelligent use of Africa's many resources.

William finds similarities between the beginning of England's technological advances and the first stages of improving conditions that African countries now face. William advocates for better use of Africa's resources, reinventing how African governments function to give African villages a leg up.

At the African Leadership Academy, William enjoys being surrounded by committed students who share his same dream of improving Africa and come from the same hard backgrounds that William grew up in. His classmates' stories of struggle and achievement inspire William to keep going when classes get tough or he feels discouraged. William hopes that his own story will help people who are still in the midst of striving towards their dreams to stay hopeful and elevate themselves and their communities. Together, William and his classmates imagine a future for Africa that erases all the bad luck of the past and looks toward a better tomorrow.

William finds a common ground with the other students of the African Leadership Academy from all over Africa because they share the same motivations to build up African communities through technology, hard work, and innovation. As William has been inspired throughout the book by stories of struggle and success, he now hopes that the journey in this book will offer that same encouragement to others. He has an extremely hopeful vision for the future of Africa that he believes can be achieved through collaboration and improved education for the new generation in Africa.

HOW TO CITE

To cite this LitChart:

MLA

Mueller, Bethany. "*The Boy Who Harnessed the Wind*." *LitCharts*. LitCharts LLC, 21 Jun 2017. Web. 21 Apr 2020.

CHICAGO MANUAL

Mueller, Bethany. "*The Boy Who Harnessed the Wind*." LitCharts LLC, June 21, 2017. Retrieved April 21, 2020. https://www.litcharts.com/lit/the-boy-who-harnessed-the-wind.

To cite any of the quotes from *The Boy Who Harnessed the Wind* covered in the Quotes section of this LitChart:

MLA

Kamkwamba, William. The Boy Who Harnessed the Wind. William Morrow. 2010.

CHICAGO MANUAL

Kamkwamba, William. The Boy Who Harnessed the Wind. New York: William Morrow. 2010.